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Images of the World:

Mental Maps of U.S. Military Officers

by

Peter R. Baker
B.S. University of Dayton, 1983

Thesis
Submitted in partial fulfillment of the requirement for the degree of Master of Arts in Geography in the Graduate School
of
Syracuse University

May, 1992

DISTRIBUTION STATEMENT A
Approved for public release;
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92 6 01 121

Approved: John Agnew

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Date: 5/8/92

92-14446

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	MAY 1992	FINAL

4. TITLE AND SUBTITLE
IMAGES of the World:
Mental Maps of U.S. Military Officers

5. FUNDING NUMBERS
—

6. AUTHOR(S)
CPT. PETER R. BAKER U.S.A.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
—

8. PERFORMING ORGANIZATION REPORT NUMBER
—

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
STUDENT Detachment
Ft. Benjamin Harrison IN

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
—

11. SUPPLEMENTARY NOTES
THESIS, Fulfillment for A Master of Arts in Geography

12a. DISTRIBUTION/AVAILABILITY STATEMENT

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)
Provided in text.

14. SUBJECT TERMS
Mental Maps, Cognitive Maps
IMAGES

15. NUMBER OF PAGES
101

16. PRICE CODE
—

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclass	Unclass	Unclass	UL

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ABSTRACT

Cognitive maps are an accumulation of a person's knowledge of the physical arrangements of continents and of the various political and cultural landscapes of the world. This project is premised upon the belief that people comprehend and arrange the world in terms relative to their own experience. Further, it is based upon the theory that there is a relationship between a person's thoughts and their actions.

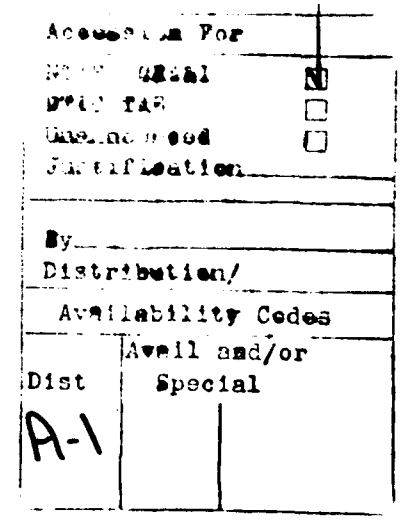
Specifically this study examines the mental maps of the officers from the United States Air Force, Navy and Army. The images of the world as perceived by the cadets, from the U.S. Military Academy at West Point, are also part of this project.

Two hundred surveys were mailed and one hundred thirty-four were returned for a sixty-seven percent response rate. The tabulation of data from the surveys provided central tendencies and standard deviations for each group. This information was used to construct composite mental maps for each group. The maps not only displayed the geographic characteristics of the countries, (the direction, distance, and size; all relative to the U.S.) but the maps also indicate the groups' composite geopolitical judgments of the studied countries.

Previewing of the mental maps revealed interesting aspects of how people mentally arrange the world. The most

striking differences were found in relation to where the cadets located Japan, South Korea, India, and Afghanistan. Their placement of these countries were extremely different compared to the maps of their senior officers in the Army. Equally interesting was the consistent placement of the countries by the officers from the three branches. The exceptions to this were the displacement of the "Air Force's" Afghanistan and the "Army's" Egypt.

The examination of mental maps brings forth the relative value people have for places. Any insight to a person's image of the world provides a better understanding to how he sees himself and how he judges others.



Statement A per telecon
Capt Jim Creighton TAPC/OPB-D
Alexandria, VA 22332-0411

NWW 6/3/92

PREFACE

I am very grateful to the many people for their assistance and their time. I especially would like to thank Professor John Agnew for his encouragement and insight from the beginning to the end of this project. Also I am greatly indebted to General Richard Eaton for his conversation and for the wealth of material he provided to me. I also would like to thank my fellow graduate students who took the time to complete the pre-test. Their comments were extremely helpful. Without Margaret Melnik's unique skill of deciphering my penmanship, a typed transcript would not have been possible and for her help I am very thankful. I am also very grateful to my wife, Mary Anne, for her untiring support and words of wisdom. I am sure she knows more about mental maps than she ever had hope to know.

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"Map me no maps, sir,
My head is a map,
a map of the whole world."
Henry Fielding

CHAPTER I

INTRODUCTION

STATEMENT OF THE PROBLEM

Cognitive maps are an accumulation of a person's knowledge of the physical arrangements of continents and of the various political and cultural landscapes of the world. This project is premised upon the belief that people comprehend and arrange the world in terms relative to their own experience. Thus an individual's mental map is based upon learned facts and exposure to impressionable images.

Facts and images of the world constitute the foundation from which mental maps are built upon. Alan K. Henrikson defines the process of formulating mental maps as:

> "... an order but continually adapting structure of the mind -alternatively conceivable as a process - by reference to which a person acquires, codes, stores, recalls, reorganizes, and applies, in thought or action, information about his or her large-scale geographical environment" (Henrikson, 1980, p. 498).

The world and its 'geographical environment' is extremely complex and dynamic. Even the simple task of knowing the location, size, population, and area of a country is very difficult to master. Conceivably this could be easier if everyone carried a pocket atlas to provide

accurate data of the countries in the world. Obviously this is not the case nor is it practical; therefore what most people know of the world is stored as an image. These images of places are often reinforced or altered by new information that people encounter through the media, personal travel, and interactions with other people.

Even though the physical characteristics of the world are mostly static, images people have of places are dynamic and fluid. Graphically, this is the main difference between representing the world with cartographic maps and cognitive maps. The former accurately displays the factual geographical data of the world which rarely changes, except for perhaps political boundaries. The latter displays perceptions people have of the world. Mental maps are reflective of the most current knowledge a person has received, regardless of the information biases. Therefore mental maps fall victim to numerous inaccuracies. It is important and valuable to examine how people comprehend the physical, political, and cultural characteristics of countries in relative values. Undoubtedly people's images and corresponding values of the world are an integral part of discussions and decisions in policy making.

The adaptability and fluidity of mental maps is best described by Downs and Stea in their book Maps in the Minds:

> "Cognitive mapping is an abstraction covering those cognitive or mental abilities that enable us to collect, organize, store, recall, and manipulate information about the spatial environment. These abilities change with age (or

> development) and use (or learning). Above all, cognitive mapping refers to a process of doing: it is an activity that we engage in rather than object that we have. It is the way in which we come to the grips with and comprehend the world around us" (Downs and Stea, 1977 p 6).

Mental maps are a graphical presentation of a person's relative value and understanding of the world's geography. It is the intention of this project is to capture and analyze these relative values. This study does not intend to diminish the importance of knowing and understanding the factual information of the earth, rather it focuses on how the world is comprehended and arranged by individuals.

Objective of the Project

The goals of this study are numerous. First this study will examine the construction of mental maps among military officers and determine if significant differences exists in their contrivance. A second objective is to account for these differences. A third objective is to compare the relative geographical values of mental maps to the factual geographic values of the world. The final objective of this study is to explore the plausibility of generation gaps as a source for difference in mental maps.

The subjects for this study are officers from the U.S. Air Force, Navy, Army, and Cadets from the U.S. Military Academy at West Point. These officers were selected because their profession continually requires geographic awareness and also involves them with international affairs. Mission

requirements demand that they have a key understanding of the physical environment, the political climate and the peoples of countries throughout the world. A review of their cognitive maps will reveal various degrees of their attachment to and understanding of certain places. It will also provide insight into military planning and the extent to which officers share similar geopolitical beliefs.

Review of Previous work

This project is not entirely unique in researching military officers' mental maps, for it borrows from the works of others. The study of mental maps has only surfaced in the last few decades. It would not be possible to discuss mental maps without referring to perhaps the most significant contributor of the field, Peter Gould. In many ways Gould pioneered the work of analyzing human behavior by addressing the phenomenon of mental images people have of places. He co-authored a book with Rodney White, Mental Maps (1986), that explored cognitive maps in detail. The purpose of their work was to provide some understanding to the '...alarming rate of rural-urban migration in those countries in which the economy is not even growing, let alone developing" (Gould, 1986 p. IX). Their work has been used by others to predict major migratory movements of people, underscoring the importance of understanding people's images of the world.

Peter Gould and Richard White first drafted this book in 1969 and 1970. Since then they have revised it (1986) to account for the dramatic changes in the "...geography of the world, and the world of geography... [and] ... this second edition reflects these changes and updates the mental images of places and distance..."(Gould, 1986, p. 173) Their work of how people mentally arrange the landscape has become a hallmark for any discussion of mental maps.

Another researcher has provided very useful material regarding the formulation of mental maps. Florence Ladd conducted a study of children's mental maps of their neighborhoods (Ladd, 1967). Her work clearly illustrated the range of differences that can exist between mental maps of a same place. Although all of the children lived on the same block (the Mission Hill neighborhood of Boston) their images of the locality varied. Dorker Street, the main thoroughfare through the neighborhood, varied in location, width, and detail. In addition, their mental maps revealed that some children feared certain parts of the neighborhood, while others did not. Ladd's work demonstrated the value of using mental maps to 'see' and understand a perspective.

Richard Eaton, a retired Brigadier General of the U.S. Army, used mental maps to gain an insight into foreign military officers' images of the world. The objective of his study was to develop a "...method for probing and accurately displaying...the operational images in the minds

of the political-military leadership of countries" (Eaton, 1988, pg. 31). General Eaton accomplished his goal by surveying numerous military officers from various armies around the world. His display of the officers' cognitive maps graphically showed the value each officer placed on their own country and other countries. Their maps represented characteristics of a country's area, population, distance and direction relative to the respondent's own country.

General Eaton constructed these maps using a combination of three geometric shapes; the ellipse, the triangle, and the rectangle. The ellipse represented a country's area and served as the base for the other two figures. The triangle represented a countries population while the rectangle depicted the perceived strategic power of a country. General Eaton coupled these spatial images with the officers' opinions regarding military, economic and political concerns. His maps proved to be informative, visually pleasing and comprehensible.

General Eaton's work attempted to provide an understanding as to why an officer had arranged the world in a particular manner. General Eaton wanted to do more than simply map geographical variables: area, population, distance, and direction. His query of military, economic and political matters provided a good insight into the process and formulation of mental maps.

The project undertaken here is an extension of General Eaton's work. As with his study, this project also confines itself to surveying military officers. Unlike General Eaton's project, this study's compares the mental maps of officers from the three U.S. Military branches: Air Force, Navy, and Army. One interest that General Eaton's study and this project shares is the inclusion of questions regarding 'geopolitical images'. These questions provide insight and understanding into the value each respondent has for various countries. While General Eaton's model was adapted for a slightly different analysis, his methodology, which encompasses a graphical display of geographic imagery, is appropriate for this study.

An understanding of person's arrangement of the world, based upon their relative measurement of distance, direction, population, and area. It offers us an insight as to why some places are more valuable than others. Hence, it is important to demonstrate how impressionable information constructs cognitive maps and shapes and directs the unbalanced treatment of places and countries. One challenge of this project is to grasp 'gray matter', such as "a perspective" and transform it into manageable and comprehensible material.

Thesis Overview

The remaining chapters reveal the essence of this study. Chapter two, Methodology, discusses the selection process of

the countries studied, and the surveyed officers'/cadets' response rates to the survey. This chapter also discusses the contents of the survey and the quantitative method used to tabulate the data. Lastly, the chapter explains which central tendencies (mean, median, or mode) were used to represent various data sets.

Chapter three, Theory and Analysis, is the core of this project. It examines the theories this project is based upon and explains how each country is perceived by the surveyed officers. The section which compares the images divides the subjects into two surveyed groups. The first group includes officers from the U.S. Air Force, Navy, and Army. The second group contains the Army officers and West Point cadets. These two groupings were created in order to appropriately analyze institutional differences (of the first group) and generation differences (of the second group). Included in this chapter is the surveyed officers'/cadets' composite mental maps. This allows for a comparison between the officers and cadets, within the defined groups, and against reality.

Chapter four, Summary and Conclusion, closes this project with a discussion of the relevance of this study and its implication. Specifically, the conclusion focuses on the inherent value of understanding mental maps and the usefulness of similar projects in the future.

CHAPTER II

METHODOLOGY

As stated earlier this study is an extension of General Eaton's work. The method used to collect data and the design of the maps reflect his earlier efforts. Hence, the organization of the survey is a partial extraction of his survey and the method used to construct mental maps is entirely drawn from his study.

Survey Construction

The survey questioned the officers'/cadets' about their personal and professional backgrounds. It also asked them to respond to geographical and geopolitical questions about selected countries. In the beginning of this project countries were chosen over regions of the world as the objects of study. I based this decision on the inherent difficulty, in academia as well as geopolitical circles, of defining a region. While the borders of country may fluctuate over decades they are fairly static and rigid. However, the borders of a region are at best vague, and are more dependent upon an individual interpretation.[1]

After choosing countries over regions the next decision was to determine which countries to choose, and how many to map. My major concern was that too few countries would not adequately capture any diversity in the mental maps. Conversely too many countries may obscure differences

[1]A comparison of the "Middle East" regional borders, as defined by four atlases, resulted in four different regions (National Geographic Atlas of the World, Britannica Atlas, Reader's Digest Great World Atlas and Goode's World Atlas).

because they may overlap each other. General Eaton's maps were limited to six countries. I elected to use eight countries because it would provide for a greater opportunity to examine differences without crowding the maps.

Selection of Countries

After settling upon the quantity of countries the next task was to develop a criteria to select the limited number. I developed two tests to screen out the numerous choices available. First, the countries had to be well known. Second they had to generate some interest to the officers. It seemed pointless to ask questions about a country that most people would not be familiar with. I am sure Surinam, a small country in South America, is not likely to be part of most officers' mental maps. Also, although Nepal may be a familiar country it may not provoke much interest for most military officers.

Even with these established tests there were many countries to choose from. The list was finally narrowed by selecting countries that have had a relationship with anyone of U.S. military services. This 'relationship' may mean the country was a host to the U.S. military or was familiar with the U.S. military because of the nearby stationing of troops (e.g. India and U.S. sailors of the nearby island, Diego Garcia). Thus Table 1 lists the eight selected countries and displays which branch of the military has a relationship with the country. Afghanistan and Poland were included even

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relationship is based upon 'fleeting' exposure it undoubtedly has had some influence upon a Naval officer's mental map of Egypt. The Army's experience is not as 'fast--in-passing'; soldiers are stationed in Egypt as part of a Multi-National Peacekeeping Force, garrisoned on the Sinai Peninsula[2]. The judgment of whether a relationship is strong or weak is dependent upon the number of troops who directly experience a country. With this though in mind, the Army is considered to have a strong relationship with Germany (where hundreds of thousands are stationed) and a weak relationship with Egypt (where only a few thousand are stationed).

Even though the Army's relationship with Egypt is weak, it still allows an opportunity for non-deployed soldiers to develop an image of Egypt. When soldiers, sailors and airmen are deployed overseas they write back to family, neighbors and friends describing their host country. When the Army's 101st Airborne Division deployed to Egypt there were numerous articles and television shows (in the local area) about the mission and the landscape of the Sinai Peninsula. This second or third hand experience undoubtedly influences a person's image of a country. Whether a soldier actually deploys to Egypt or not, he probably has more images of it than the airman, who has less experience of Egypt.

[2]There is always one Army Division stationed in Egypt as part of this contingent force. Length of deployment is limited to six months after which a new Division deploys to the Sinai.

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I also chose to survey Army cadets stationed at the U.S. Military Academy at West Point. This sample provided me with a group of individuals who are being trained to be future Army officers. The cadets' responses enabled me to determine if there was a generation difference between mental maps. I further subdivided the West Point cadets by year group. I administered the survey only to first-year cadets (plebes) and fourth-year cadets (firsties). This allowed for the identification of difference between the plebe, who left the civilian world a few months ago, and the firstie who is about to join the officer corps in a few months.

Response Rates

Realizing the larger the sample size the better representation of the population, I forwarded forty surveys to each group. The response expected rate was 60% or better because of the benefit of a 'chain-of command' to assist with the execution of the surveys (See Table 2). I was able to contact one person at each institution (usually the senior officer/cadet of each class) to receive, distribute and collect the surveys. Fortunately, I had established the point of contacts early (October 1991) and mailed the surveys out shortly after(December 1991), because there was a great demand

upon the students' time to participate in other surveys[4].

Table 2

Response Rates

Group	Surveys Sent	Surveys Returned	Response Rate
Air War College	40	22	55%
Navy War College	40	28	70%
Army War College	40	12	29%
First year Cadets	40	40	100%
fourth year Cadets	40	30	75%
overall	200	134	67%

Survey Questions

The surveys questioned the officer's/cadet's images regarding geographical characteristics of the eight countries, (see Annex C). I also included questions that required answering with either short sentences or phrases. The goal of this strategy was to seek further insight and understanding how military officers perceive the world.

Personal data collected included: age, marital status, foreign language skills, years-in-service, and years spent overseas. Their answers to these questions allowed me to determine the degree of homogeneity of each subject group. These questions also indicated the level of a person's education and experience. I suggest that the number of years an officer spent overseas has a strong influence upon his mental map. Additionally, if their spouse is foreign or if the officer can speak, read or write in another language, this also influences his mental map.

[4]This was very evident with the Army War College students. The College placed a temporary ban on surveys (after mine was accepted) because they had received 17 requests within two months.

As with any research there are strengths and weakness to the methodology chosen. The four distinct advantages of a survey by mail are:

1) it is less expensive than telephone or personal interview surveys.
2) the absence of an interviewer-induced bias that plague personal interviews.
3) respondents can see the questions and answers.
4) respondents have the opportunity to think about the questions

(Sheskin, 1985, p19)

Major disadvantages of a survey by mail are:

1) generally a lower response rate than interview surveys.
2) questions can be confusing and there is no opportunity to ask for clarification.
3) respondents can see the length of the survey and maybe be discouraged from completion.

(Sheskin, 1985, p 20-21)

Also an additional disadvantage is that the surveys may not be answered by the target audience.

Prior to the mailing of the survey I conducted a pretest with 17 fellow graduate students. I am extremely grateful for their feedback because it helped me to clarify some questions and eliminate others. This, decreased the amount of time it took the officers/cadets to complete the survey. The survey was constructed in a manner that required a number or a mark (e.g. they had to mark off the relative distances of the countries). This process allowed for a fairly short time requirement to complete the it. The pretest took an average of 50 minutes to complete. After

the revision the survey required approximately 30 minutes to complete.

A common concern among the graduate students was some of the terminology used in the questions. Most of them wanted to know how "strategies" was defined, such as economic, military, or political. I consciously did not want to include any of my biases by providing definitions. I thought it was important not to lead anyone if I wanted to map their perspectives and not my biases.

The survey contains six separate variables that required the respondents to classify the countries within each variable (refer to Annex C). They ranked the countries according to 'strategic value' and the 'level of support' it is perceived to have for the U.S. (geopolitical variables). The respondents also judged the relative measurements (relative to the U.S.) of direction, distance, area and population (geographic variables).

Tabulation of Data

Table 3 reflects the data compiled and computed by MINITAB, a software package. This program provided the mean, median, mode, range and the standard deviation (STD DEV) for each variable by country and by group. The central tendency (CT) was used to map the variables based upon the scale of measurement involved (Griffith, 1991, p.75-89). The standard deviation was also determined, revealing the extent of centering around the mean.

"Box-Plot" graphs are included (see Annex B) to provide a summary for chosen data. These graphs give a visual appreciation for the subjects' range of responses; and other statistical properties pertaining to a country's **Direction** and **Distance.** They also inidcate how representative the composite maps are of each individual's spatial awareness of the world.

Table 3
Measurement Scales

Variable	Rank	Direction	Distance	Area	Population
SOM	ordinal	ordinal	ration	ordinal	ordinal
CT	median	mean	mean	median	median

Variable	Level of support	Years overseas	Years in service	Age
SOM	nominal	ratio	ratio	ratio
CT	median	mean	mean	mean

CHAPTER III

Part I

THEORY AND ANALYSIS

This study embraces the theory that subscribes to a body of knowledge that believes there is a connection between a person's behavior and their cognitive abilities. This connection between thought and action is the foundation of probing and understanding mental maps.

The research for this exploratory project is framed by both inductive and deductive modes of reasoning. Inductive design is employed to discover possible differences between mental maps of officers in the Air Force, Navy, and Army. Induction is also used to examine the possible differences between the mental maps of generations within the Army (the cadets and senior officers). The deductive approach is used to determine to what degree an officer's level of education, experience, and age influences his perceptions of the world.

The analysis of the data is divided into two sections. The first section compares the officers from the Air Force, Navy and Army War Colleges. The second section compares the results of students from the Army War College, and the first year and fourth-year cadets from West Point. The comparisons examine the similarities and differences between each group in their cognitive maps.

Analysis of Air Force, Navy, and Army Officers

Figures 3-6 reflect the personal data profiled from Air Force, Navy, and Army officers. The war college students do not vary much from their counterparts in the other services. This is expected because a common denominator, years-in-service, for the most part influence years-overseas and age. The survey officer is most likely:

1) between 41-44 years old.
2) served between 19-21 years.
3) spent between 4-5 years overseas.
4) is either a ROTC or OCS graduate.
5) married.

See Figure 1-6 for each service's median personal data[5].

Surprisingly, the number of years-overseas by surveyed officers was much lower than anticipated. The expected response was between eight and nine years which would entail three overseas tours. The survey also showed similar sources of commissioning for the officers from the Air Force and Navy. Figure 4 presents almost a mirrored image of the two services. The Air Force does stand by itself in Figure 6, language skills. The Navy is the most linguistic (32%) with the Army slightly less (29%).

The purpose of these questions was to capture the depth and scope of an officer's experiences and world exposure. It can be hypothesized that the more years an officer spent

[5] The marital status of the officers was not graphed because there was no significant difference. All officers were married except for three officers, an Air Force officer and two Naval officers. Of the 131 married officers, four were married to non-U.S. spouses. This was a consideration because the spouse's attachment to the "homeland" could be an influencing factor with the officer's images. The non-U.S, spouses were: Air Force, a Filipino and British spouse; Army, an Iranian spouse; Navy, a British spouse.

abroad the more likely his image will differ from his comrades that remained stateside.

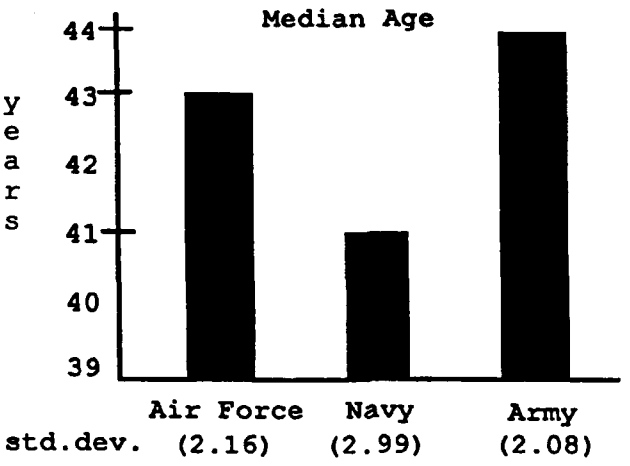


Figure 1

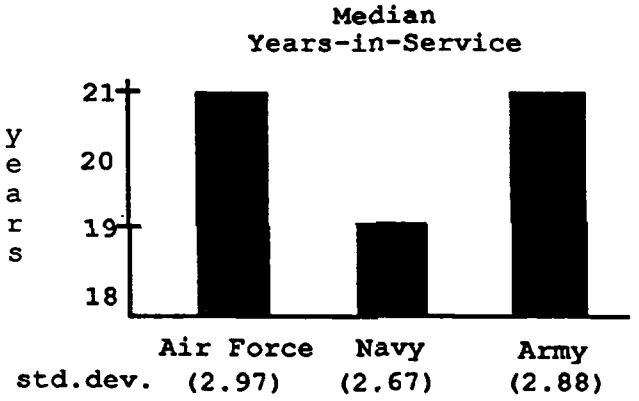


Figure 2

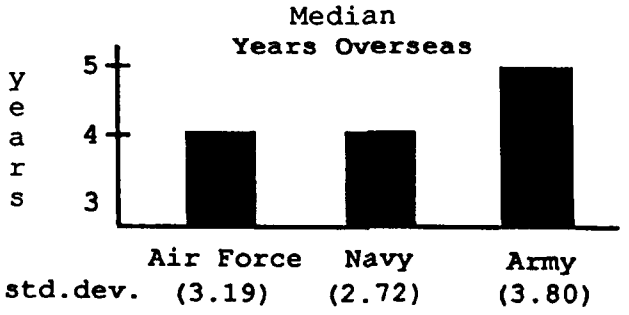
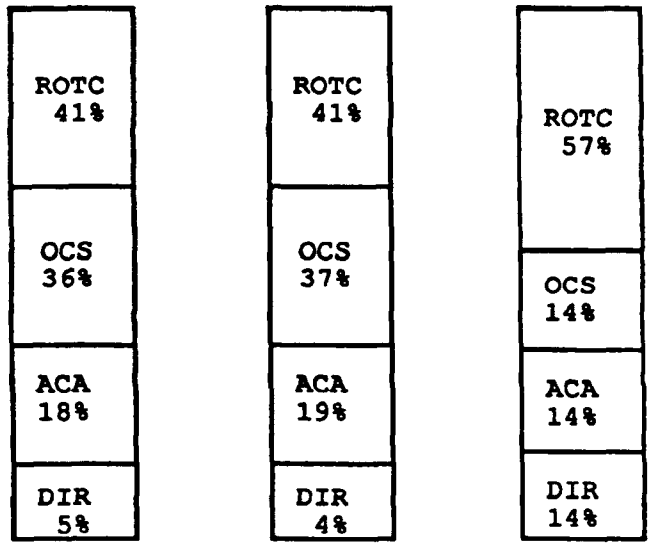


Figure 3

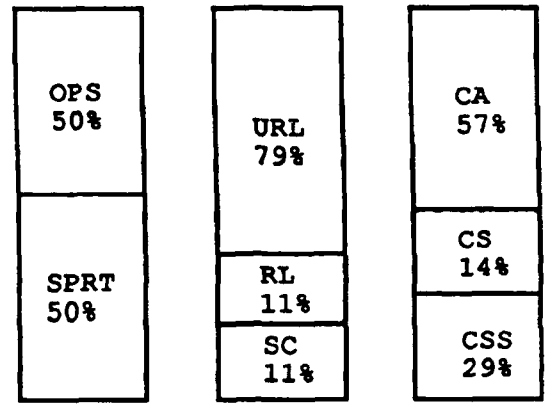
Source of Commission



Key: ROTC- Reserve Officer Training Corps
OCS - Officer Candidate School ("officer boot camp")
ACA - Military Academy
DIR - Direct (commissions usually given to doctors, lawyers and similiar professions).

FIGURE 4

Branches within the Services



KEY:

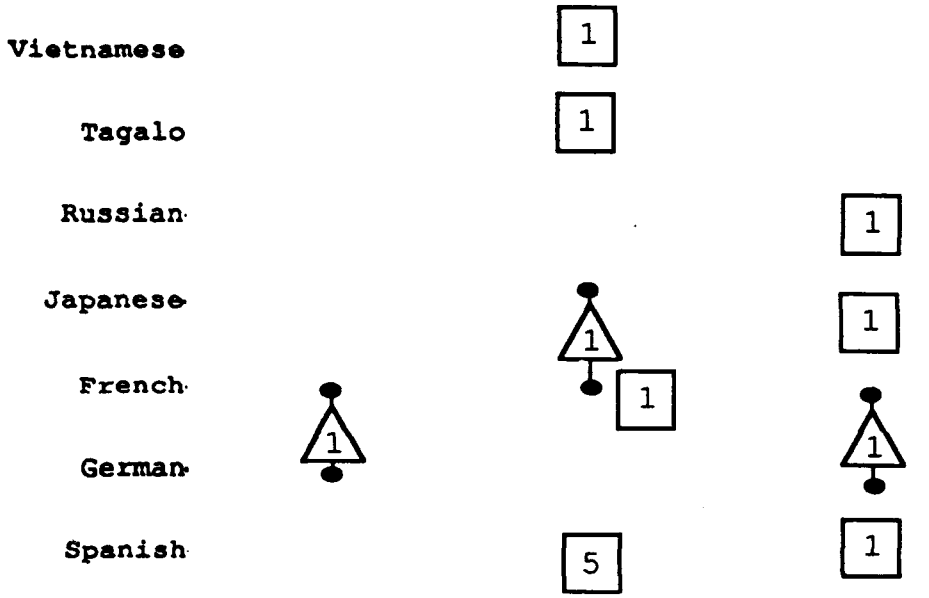
Air Force
- OPS - Operations: pilots, navigators, ground controllers
- Sprt- Support: public affairs, personnel, doctors, supply

Navy
- URL- Unrestrcted line: pilots, navigators, combat ships submarines, special warfare
- RL - Restricted line: intellegence, cryptology, meterology
- SC - Staff Corps:lawyers, doctors, civil engineers, supply

Army
- CA- Combat Arms: infantry, armor, artillery
- CS- Combat Support: intellegence,quatermaster,ordance
- CSS-Combat Service Support: doctors, lawyers, public affairs

FIGURE 5

Forgein Lanuages Spoken



	Air Force	Navy	Army
Percentage	9%	32%	29%
Number of officers	(1)	(9)	(4)

Key: Triangles indicate an officer speaks more than one forgein lanuage

FIGURE 6

The discussion of Group One's maps is divided into three portions. The first part includes the composite map of each service and is followed by a discussion that is centered upon the maps' similarities and/or differences.

The second part has a more detailed discussion of each country's perceived image. The analysis of the maps is conducted country by country. The use of central tendencies and standard deviations is employed to further find any similarities and/or differences between the composite images.

The third and final portion of the analysis is a comparison of the values of the 'imaged' world against the values of the real world. This concludes the discussion of Group One's map and also applies since 'weight' of appreciation to the officers' relative values. This same method of analysis is used with Group Two, the Army officers and the West Point cadets.

Prior to the discussion an understanding of the significance of the numbers is needed. The following chart (see table 4) gives the variable and the possible ranges (if appropriate) of choice. All of the numbers are relative to the characteristics of the United States.

Table 4

Variables Defined and Ranges

Variable	Definition	Range
STRATEGIC	the strategic importance of the country to the U.S.	1 (most) to 8 (least)
DIRECTION	clock direction from the U.S.	0:00 hrs-12:59 hrs
DISTANCE	distance from the U.S. [6]	0.0-15.5 [7]
AREA	size of the country's land mass relative to the U.S.'s land mass	1 (smallest) to 9(largest) [16]
POPULATION	the population of the country relative to the U.S.'s population	1 (smallest) to 9 (largest [8]
SUPPORT	the level of support the country has for the U.S.'s strategic goals	1 (least) to 5 (most)

[6]Direction and distance were not defined from any one particular point in the US (e.g. West or East Coast). Purposely did not want to alter anyone's mental images to fit a rigid standard. The hazard to this method is variation in distances without accounting for the possible differences (e.g. some could be indicating distance from the East Coast while others could use a centroid in the US as a focal point).

[7]Respondents placed a mark along a line indicating the distance of a country from the U.S. (see Annex C). Since this is a relative measurement, all marks were measured without regard to scale. Although not confined to the line no respondent's marker passed the end of the line.

[8]The standard deviation is consistently smaller for AREA and POPULATION variables because some of the respondents did not correctly answer the question. This was true with all groups.

CHAPTER III

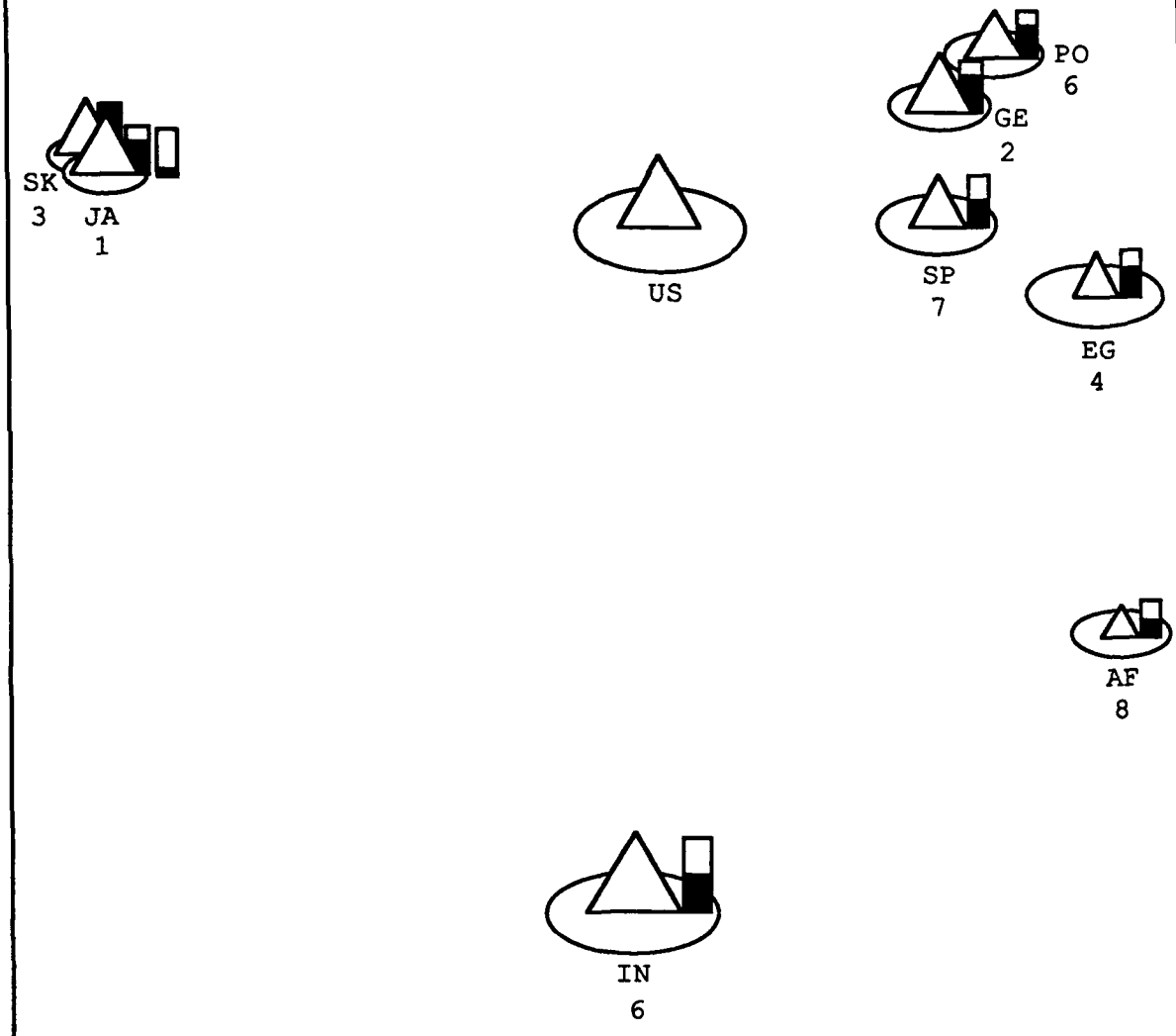
PART II

Officers' Mental Maps

Viewing Maps 1-4 we can see there are more similarities than differences between the officers' images. All three orient South Korea and Japan northwest from the U.S. They all perceive South Korea to be very supportive of U.S. goals. Air Force and Army officers equally value South Korea as the third most strategically valuable country. These are also the two services that have a strong relationship with South Korea (see Table 1). There is no disagreement; all three estimate Japan is the most valuable strategic country of the eight.

The remaining six countries are also aligned in a similar manner on the three maps. The most noticeable difference is the variation of India's and Egypt's land mass. The magnitude of differences is more thoroughly discussed in the second part of the analysis.

Air Force Officers' Mental Map



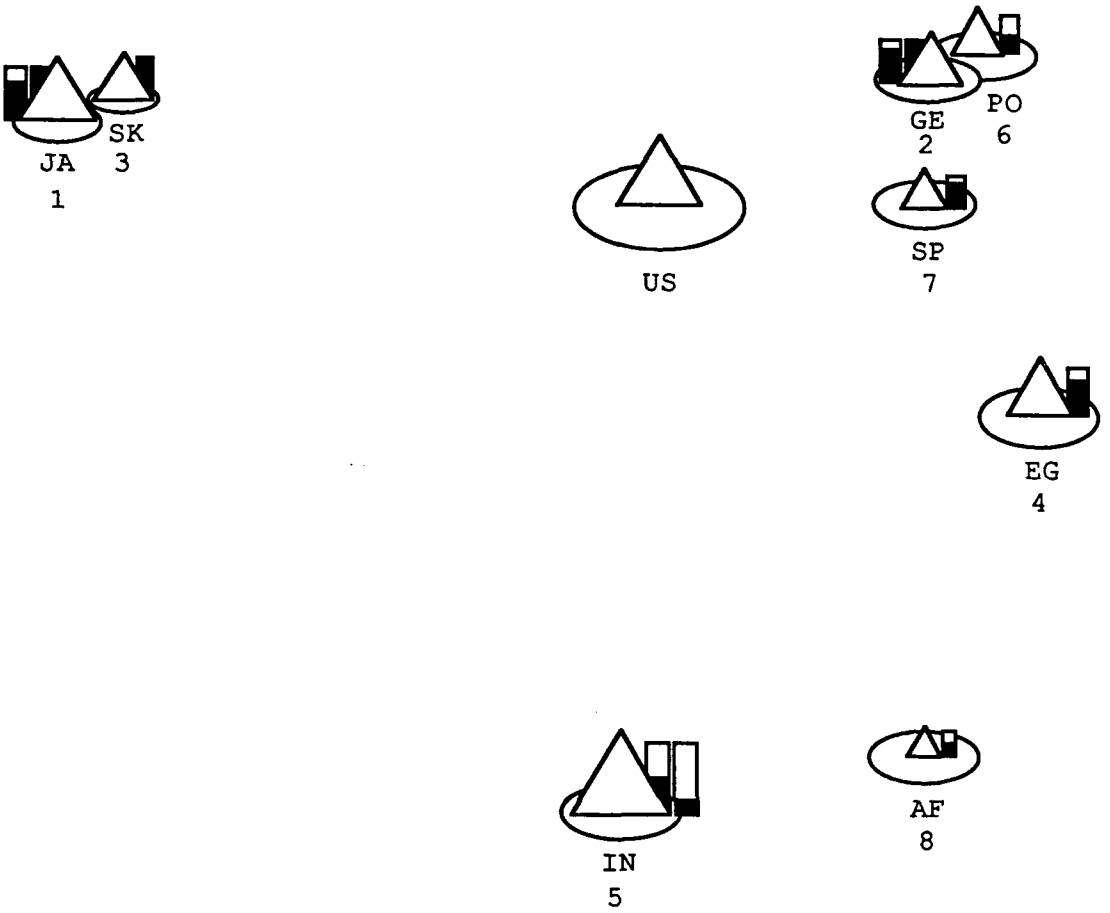
MAP #1

Population--- △ Strategic Value--- # Area--- ⬭

Level of Support--- (2) (3) (4) (5)

THIS
PAGE
IS
MISSING
IN
ORIGINAL
DOCUMENT

Army Officers' Mental Map

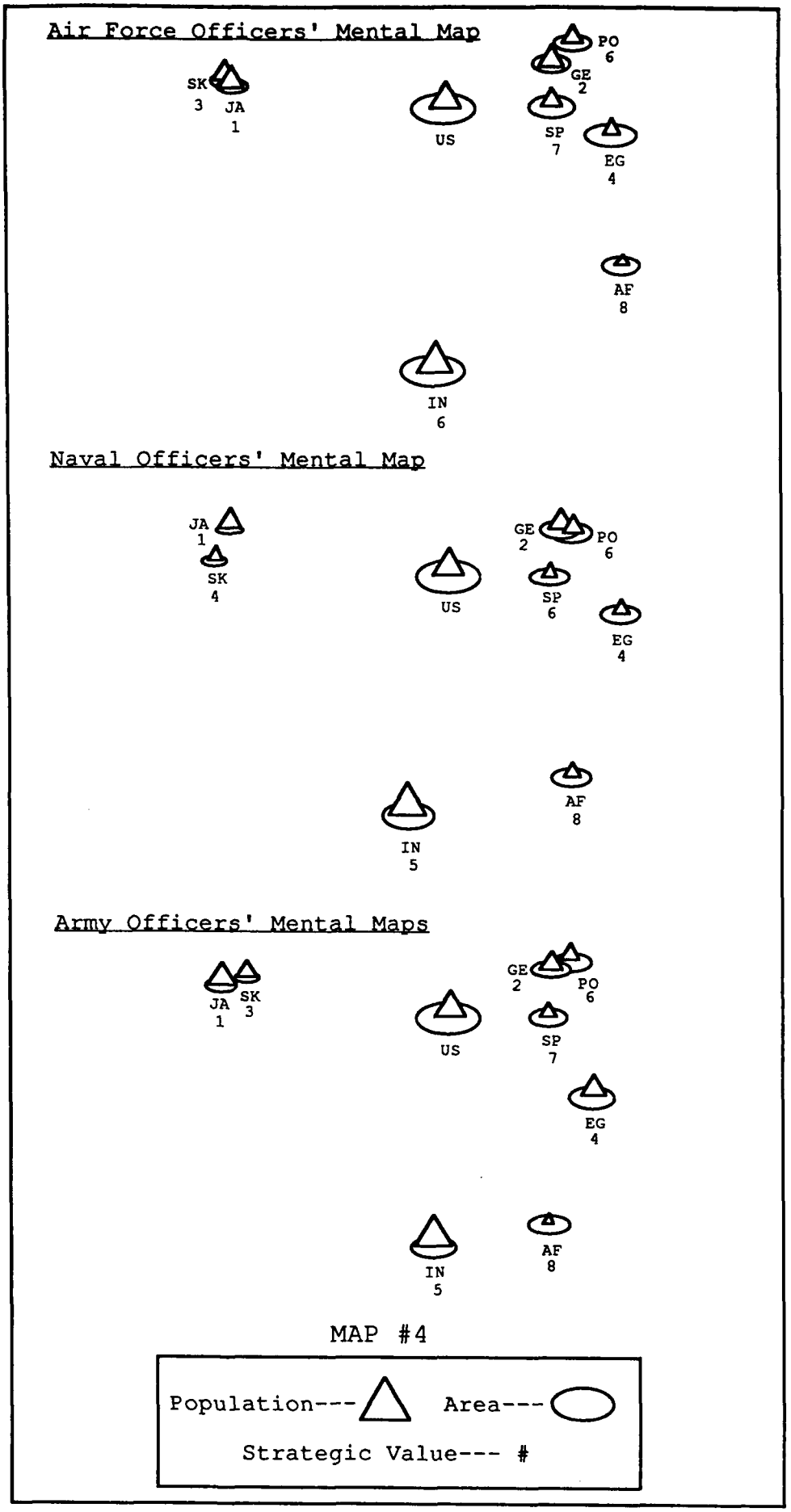


MAP #3

Population--- △ Strategic Value--- # Area--- ⬭

Level of Support--- ▯ ▯ ▯ ▮

(2) (3) (4) (5)


Air Force Officers' Mental Map
SK 3
JA 1
US
PO 6
GE 2
SP 7
EG 4
AF 8
IN 6
Naval Officers' Mental Map
JA 1
SK 4
US
GE 2
PO 6
SP 6
EG 4
IN 5
AF 8
Army Officers' Mental Maps
JA 1
SK 3
US
GE 2
PO 6
SP 7
EG 4
IN 5
AF 8
Population---
Area---
Strategic Value--- #

MAP #4

This next part is a more thorough discussion of the officers' images. The Standard deviation is included to demonstrate the degree of clustering, which shows how alike the images are within each service. A content analysis of the officers' narrative response regarding their images, is also included in this section. The words' percentage of use is indicated

- **AFGHANISTAN**

Table 5

AFGHANISTAN

	STRAT.	DIR.	DIS.	AREA	POP.	SPRT
Air Force	8	4:43	11.13	3	1	3
STD.DEV.	1.14	2.64	2.55	1.14	1.10	2.82
Navy	8	5:01	11.35	3	2	3
STD.DEV.	1.34	3.28	3.07	1.49	1.51	2.76
Army	8	5:20	11.26	3	1	3
STD.DEV.	1.14	3.09	2.36	1.16	0.50	0.66

There is little difference within each service and between them regarding Afghanistan's strategic importance to the U.S.; it is the least significant country of the eight polled. Other strong similar images between the services include: distance, area, population and Afghanistan's level of Support for the U.S. (three represents a neutral position of support, neither threatening nor supportive).

The only noticeable difference between the images, is the estimation of **Direction**, which also has the greatest standard deviation. An explanation for the strong similarity between the three images of Afghanistan can most

be attributed to the fact that none of the services has a relationship with this country. Some of the common and most used phrases, among the services, to describe Afghanistan are:

tribal (25%)	rural (11%)	third world (11%)
poor (53%)	mountains (43%)	Soviet satellite (25%)
Muslim (45%)	revolutionary war (25%)	

An Army officer's opinion of this country could have easily been written by any other officer from the other services. He wrote, Afghanistan is "...irrelevant to the U.S. [since] the fall of the Soviet Union".

- **EGYPT**

Table 6

EGYPT

	STRAT	DIR.	DIS.	AREA	POP	SPRT
Air Force	4	3:32	8.00	5	2	4
STD.DEV.	0.87	0.50	2.27	1.14	1.17	0.38
Navy	4	3:45	8.25	3	2	4
STD.DEV.	1.04	1.52	2.59	1.69	1.41	0.86
Army	4	4:01	7.82	4	4	4
STD.DEV.	1.45	0.89	2.41	1.32	1.29	0.66

In reference to Afghanistan, the services show a strong similarity regarding their perspective upon Egypt's strategic importance and its potentially supportive (4) position toward U.S. goals. The estimation of Egypt's **Direction** and **Distance**, from the U.S., is also very much alike between the services. The most direction varies is by

twenty nine seconds. The largest difference between distances is slightly more than a half unit (8.25-7.82).

The images vary the most when the officers estimate Egypt's area. **Population** and **Area** present the most significant difference among the three services. It is also interesting to note the relatively large standard deviation regarding **Distance**. The standard deviation reveals disagreement with Egypt's estimated distance among the officers within each branch. Interesting to note though, although the clustering about the man is not very 'tight' the median value for **Distance** is very close to each.

Some of the common and most used phrases of the services to describe Egypt are:

Muslims (20%)	Nile River (25%)	Arabs (27%)
Poor (35%)	Suez Canal (41%)	Sadat (18%)
overpopulated (14%)	pyramids (23%)	third world (12%)

This must be related to their long and continued exposure to the 'Middle East' with tours in and round the Persian Gulf.

- **GERMANY**

Table 7

GERMANY

	STRAT	DIR.	DIS.	AREA	POP	SPRT
Air Force	2	2:25	5.55	3	4	4
STD.DEV.	1.64	0.64	1.85	2.39	1.52	0.97
Navy	2	2:24	5.77	3	4	5
STD.DEV.	1.89	0.84	1.79	1.92	0.99	0.77
Army	2	2:16	5.40	3	4	4,5
STD.DEV.	1.74	0.5	2.12	1.16	0.25	1.31

Other than a slight variation in **Direction**, **Distance** and **Support** there is no difference between the mental maps of the Air Force, Navy and Army officers. The standard deviation is less than two, except for Air Force's **Area** and Army's **Distance**; this indicates a strong agreement among the officers.

The best explanation for the high degree of similarity is the extensive exposure to Germany for all officers. As one of two NATO members, of the eight surveyed, it is undoubtedly a concern of most military planners. To a limited extent, Germany is also a host to all three branches. The two dominant branches , Army and Air Force, have thousands of personnel stationed in Germany. The Navy has several small detachments scattered throughout the country. Common phrases used to describe Germany are:

Economically powerful (21%)	Hitler (10%)
Mercedes (10%)	Efficient (11%)
Democracy (12%)	Industrialize (20%)
Berlin Wall(12%)	Beer (19%)
Potential Military power (21%)	

Both Air Force and Naval officers mentioned Germany's quality precision industries. This is probably associated with the abundance of 'high tech' equipment that these two services must rely upon. The Army's backbone, the

infantryman, is not very dependent upon high precision equipment.

- **INDIA**

Table 8

INDIA

	STRAT	DIR	DIS	AREA	POP	SPRT
Air Force	6	6:10	12.82	6	7	3
STD.DEV.	1.09	2.22	2.37	1.0	1.34	0.70
Navy	5	6:34	11.87	5	8	2
STD.DEV.	1.33	2.94	2.80	2.10	1.60	0.68
Army	5	6:14	11.76	4	8	2,3
STD.DEV.	1.44	2.59	2.35	1.16	1.16	0.76

India offers the most diverse spatial awareness, both within and between the services. The standard deviation is greater than two in six incidents, and there is no variable with the same value among the three services. India is one of three candidates (South Korea, and Spain are the other two) that creates a contention among officers' appreciation for its strategic importance. The Navy and Army have a slightly higher concern for India's strategic value than the Air Force. While the difference in their appreciation is small, the officers do mirror each other's strategic importance for five of the eight countries. Couple this with the disharmony in the estimation of **Area** and **Population**, and it produces the largest difference among the images of India.

When asked to list phrases or short sentences describing the country, Army officers had the least to say while Naval officers had the most to say. The following

phrases are not limited to us Naval officers but were listed predominantly more than their counterparts:

Military power in the Indian Ocean (47%

Caste System (24%) Nuclear(59%) Curry (29%)

Sacred Cows (18%)

Phrases common to all of the branches are:

Poor (53%)	Hindu (37%)
regional power (11%)	Ghandi (13%)
ethnic turmoil (11%)	Overpopulated (61%)
Religious instability 12%	
Politically unstable (12%)	

The diversity of images is probably related to degree of exposure and experience officers have had with India. The Navy has a base on Diego Garcia, an island off the coast of India. There have also been numerous Naval ships that have deployed to the Indian Ocean. The Air Force and Army are much more detached. Except for an occasional over flight, the two land based services are probably only concerned with India on the 'planning' level. This would take place at the highest echelons of the branches.

- **JAPAN**

Table 9

JAPAN

	STRAT	DIR.	DIS	AREA	POP.	SPRT
Air Force	1	9:21	10.06	2	5	2,4
STD.DEV.	0.60	1.45	2.28	0.45	0.84	1.28
Navy	1	9:44	10.64	1	4	5
STD.DEV.	1.37	0.75	2.58	1.75	2.49	1.55
Army	1	9:26	10.86	2	5	4,5
STD.DEV.	1.50	0.85	3.26	0.63	1.00	1.45

Overlooking the **Support** variable, there is again a strong similarity between the officers' perspective of Japan. The Navy's estimation of **Area** and **Population** vary slightly from Air Force's and Army's estimation. The differences in **Direction** and **Distance** are even smaller.

There is a strong agreement within and between the services regarding Japan's STRATEGIC value. They all agree, with little deviation, that of the eight countries Japan is the most significant to the U.S.

The disagreement lies in whether Japan is perceived as potentially threatening (2), potentially supportive (4), or supportive (5) to the strategic goals of the U.S. The Air Force officers have split opinions, believing that Japan can become either potentially threatening or potentially supportive. Similarly, Army officers are equally split between potentially supportive and supportive. The anxiety over Japan's relationship to the U.S. is a strong indication of the high level of uncertainty of its future role(s).

While India created the most diversity of spatial awareness, Japan caused the most controversy in geopolitical agreement.

Phrases listed by Air Force officers that indicate this geopolitical split:

Anti-military(26%)	Nationalistic (19%)	Elitists (38%)
Orderly (24%)	Quality (33%)	
Electronics (33%)		

Phrases common to all three branches:

Pearl Harbor (12%)	Economically strong (25%)
wealthy (9%)	Resource poor (10%)
democracy (11%)	culture (10%)
Economic adversary (12%)	homogeneous population (10%)
Overpopulation (13%)	industrialization (14%)

The Air Force has the majority of troops of all branches stationed in Japan. Army officers are familiar with Japan because of its close proximity to South Korea, a common tour in an officer's career. Naval officers have less limited exposure to Japan with only periodic port calls.

- **POLAND**

Table 10

POLAND

	RANK	DIR	DIS	AREA	POP	SPRT
Air Force	6	2:14	6.78	3	3	4
STD.DEV.	1.06	0.48	2.37	1.00	1.30	0.74
Navy	6	2:37	6.28	3	3	4
STD.DEV.	1.18	1.67	1.60	1.67	1.07	0.67
Army	6	2:16	6.37	3	3	3
STD.DEV.	0.94	0.50	2.19	1.11	1.11	0.65

Poland rivals Germany with strong agreement within and between the services. The only notable difference among their images is the degree of Poland's Support for U.S. goals. Army officers' estimate Poland is neutral (3), while the other two services believe there is potential for Poland to be supportive (4). Similar to Germany, there are only two variables that have a standard deviation greater than two (Air Force and Army Distances). But this is of little concern since the difference between the two estimated distances is negligible (0.50 units).

Poland, along with Spain, did not stir much passion among any of the officers. This is most probably due to the former Soviet Union's shadow over Poland since World War II. This has hampered travel to and exposure of, this 'buffer' country to U.S. troops stationed in Europe. Phrases most often written to describe Poland are:

Solidarity (14%) Pope (11%) Poor (23%)

Developing (19%) Backward (12%)

Wallensa (14%) Politically unstable (11%)

- **SOUTH KOREA**

Table 11

SOUTH KOREA

	RANK	DIR	DIS	AREA	POP	SPRT
Air Force	3	9:27	10.54	1	4	5
STD.DEV.	0.96	0.81	2.02	0.45	1.52	0.85
Navy	4	9:15	11.12	1	2	5
STD.DEV.	1.50	1.80	2.65	1.07	0.84	1.06
Army	3	9:39	9.77	1	3	5
STD.DEV.	1.28	0.63	2.79	0.00	1.26	1.12

While not as diverse in spatial awareness as India, South Korea's image does vary among the services. Among all of the studied countries the estimation of **Distance** between the U.S. and South Korea is the most varied.

The Army officer may have a stronger attachment toward South Korea than his counterparts because he is more familiar with this Far East country. Next to Europe, South Korea is the second most likely place for an Army officer to serve. Numerous Army personnel (majority of them enlisted soldiers) marry Korean women and return with them to the U.S. This has allowed a Korean subculture to develop on and around most stateside Army posts. This introduces officers and personnel to Korean culture (food, music, language, and religion) and helps formulate an image of the country without traveling to Korea firsthand. The Air Force also has troops stationed in South Korea but not in the same proportion as the Army. There are also Naval personnel stationed in Korea, but again not to the same extent as the

Army. The common phrases all of the officers used to describe South Korea are:

Good Ally (10%)	Economically Developing (25%)
Hard workers (23%)	Regional power (27%)
Cold weather (21%)	Developing technology (30%)
Kimchee (a cabbage) (35%)	

One Army officer provided a more thorough description of South Korea as a "...Far Eastern Culture with a Western veneer."

- **SPAIN**

Table 12

SPAIN

	RANK	DIR	DIS	AREA	POP	SPRT
Air Force	7	3:02	5.04	4	3	3
STD.DEV.	1.00	0.64	2.32	0.82	2.28	0.72
Navy	6	3:06	4.79	3	3	4
STD.DEV.	1.33	1.06	1.66	1.19	0.64	0.64
Army	7	3:03	4.67	3	2	4
STD.DEV.	1.12	0.59	2.05	0.50	0.0	0.51

The only common element of the military mental maps regarding Spain is the **Direction.** In fact the officers' sense of direction of Spain is only minutes apart from each other. The greatest difference is only four minutes (Air Force and Navy) and the standard deviation is very low for all three services. The next closest country's estimated direction is Germany, nine minutes.

In past years the Air Force has had several bases LOCATED in Spain and the Navy had many port calls. The close proximity of Spain to Germany has allowed Army soldiers to familiarize themselves with the many beaches and other tourist attractions in Spain. Common phrases used by the officers to describe Spain are:

Bullfights (10%)	Moderate (13%)
Occasional ally (27%)	passive non-player (41%)
old world (35%)	poverty (31%)
laid back (38%)	monarchy (11%)

An Air Force officer best summed up the majority of the officers' opinions with "...a second level power...[with] an uncertain role in Europe."

Comparisons to Reality

This chapter compares the composite relative values given by the respondents to the actual values of the world.[9] This comparison works well with Area and Population because these two variables are easier to define and to measure. The comparison becomes distorted with Direction and Distance because of the vagueness involved. It is much more difficult to determine an exact direction from one country to another. Should the measurements be between capitals or between centers of the countries? Should the distance be

[9]For determination of actual value see Annex B

measured from the closest coastline or from the furthest coastline?

The purpose of this comparison is not to validate or find fault with images. It is to provide a sense of value for the relative measurements provided by respondents. If one group believes that India is closer to the U.S. than South Korea, then this judgment has more meaning when actual measurement shows the opposite is true.

The following table shows how each service ranked each country's area, on a scale of one to nine. One represents the smallest area; nine is the largest. The U.S. is given a value of six and all estimates are relative to this number. This provided a common ground so the relative values could be compared to each other. The determination of the actual values is described in Annex A. This same method of comparison is used for tables thirteen through sixteen and tables twenty-five through twenty-eight.

Table 13

AREA

ESTIMATE/ACTUAL	AIR FORCE	NAVY	ARMY
AFGHANISTAN	3/3(=)	3/3(=)	3/3(=)
EGYPT	5/3(+)	3/3(=)	4/3(+)
GERMANY	3/2(+)	3/2(+)	3/2(+)
INDIA	6/5(+)	5/5(=)	4/5(-)
JAPAN	2/2(=)	1/2(-)	2/2(=)
POLAND	3/2(+)	3/2(+)	3/2(+)
SOUTH KOREA	1/1(=)	1/1(=)	1/1(=)
SPAIN	4/2(+)	3/2(+)	3/2(+)

Key: (=) estimation and actual values match
(+) Overestimated
(-) Underestimated

	Number of Countries:		
	Overestimated	Matched	Underestimated
Air Force	5	3	0
Navy	3	4	1
Army	4	3	1

As with the previous table, this table shows how each service ranked the country's population from one to nine.

Table 14

POPULATION

ESTIMATE/ACTUAL	AIR FORCE	NAVY	ARMY
AFGHANISTAN	1/1(=)	2/1(+)	1/1(=)
EGYPT	2/3(-)	2/3(-)	4/3(+)
GERMANY	4/3(+)	4/3(+)	4/3(+)
INDIA	7/9(-)	8/9(-)	8/9(-)
JAPAN	5/4(+)	4/4(=)	5/4(+)
POLAND	3/2(+)	3/2(+)	3/2(+)
SOUTH KOREA	4/2(+)	2/2(=)	3/2(+)
SPAIN	3/2(+)	2/2(=)	2/3(=)

Key: (=) estimation and actual values match
(+) overestimated
(-) underestimated

	Number of Countries:		
	Overestimated	Matched	Underestimated
Navy	3	3	2
Navy	3	3	2
Army	5	2	1

Table 15 depicts the order, actual and perceived, of the countries, regarding their distance from the U.S.

Table 15
DISTANCE

	Actual Order	Air Force	Navy	Army
Closest	Spain	Spain	Spain	Spain
	Germany	Germany	Germany	Germany
	Poland	Poland	Poland	Poland
	Egypt	Egypt	Egypt	Egypt
	Japan	Japan	Japan	**South Korea**
	Afghanistan	**South Korea**	**South Korea**	**Japan**
	South Korea	**Afghanistan**	**Afghanistan**	**Afghanistan**
Furthest	India	India	India	India

BOLD indicates a difference in the order of estimated distance compared to the order of the actual distance.

Table sixteen compares the actual direction against the respondents' estimated direction. The direction is shown in clock units.

Table 16

DIRECTION

ESTIMATE/ACTUAL	AIR FORCE	NAVY	ARMY
AFGHANISTAN	4:43/3:03	5:01/3:03	5:20/3:03
EGYPT	3:34/3:12	3:45/3:12	4:01/3:12
GERMANY	2:25/2:39	2:24/2:39	2:16/2:39
INDIA	6:10/3:11	6:34/3:11	6:14/3:11
JAPAN	9:21/8:59	9:44/8:59	9:26/8:59
POLAND	2:14/2:40	2:37/2:40	2:16/2:40
SOUTH KOREA	9:27/8:58	9:14/8:58	9:39/8:58
SPAIN	3:02/2:57	3:06/2:57	3:03/2:57

CHAPTER III

PART III

The second goal of this project is to determine if there are any generational differences that account for how people mentally and spatially arrange the world.

The age difference between the West Point cadets and the Army officers is approximately twenty years. With the selection of cadets, any institutional doctrine within the U.S. Army becomes less accountable for the differences between the maps, as is between the various services. This gives a higher probability that any differences are due to age and its associated experiences.

The differences in age between the first year cadet and fourth year cadet is minimal[10]. A comparison between the two cadet classes allows for an examination of how much difference there is between the cadets. These differences can most likely be contributed to the level of education between the cadets.

The method of analysis between these three groups is the same method used between the officers of the three services. As before, the discussion of Group Two's maps, precedes the more detailed discussion of each country's perceived image.

[10]The mean ages for the first year cadet is 19 and for the fourth year cadets is 22.

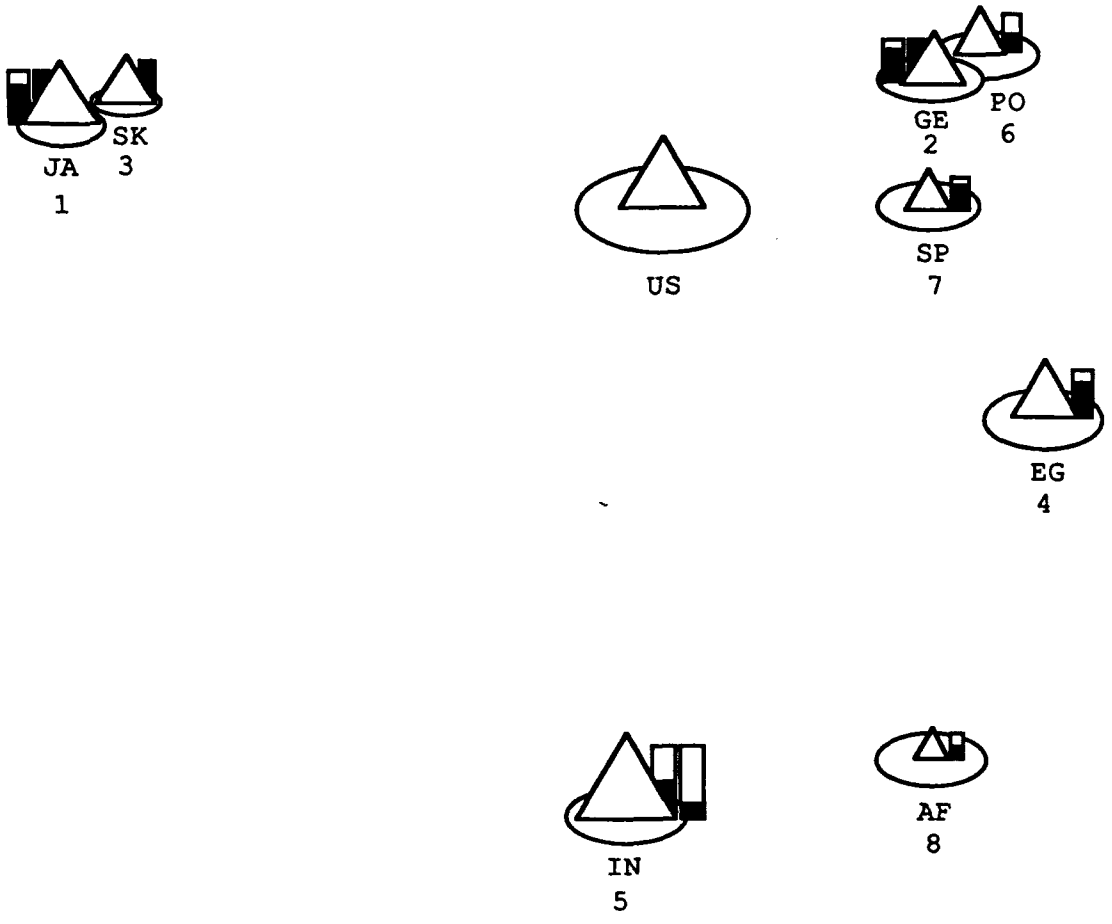
Officers' and Cadets Mental Maps

Unlike the first group, the Army officers' cadets' maps show more difference. Japan and South Korea are oriented differently in each map. The first-year cadets' position these countries along southwest axis. The fourth-year cadets do likewise but group the countries closer together. The officers place the countries more along a northwest, almost a due west, course. It is interesting to note that the first-year cadets (half of whom found Japan to be 'potentially threatening' [2]) placed the same strategic value upon Japan, Egypt, and South Korea. They considered Germany the most strategic country. Except for Japan, these are the only countries that have relationships with the Army. This is perhaps an indication of how much exposure nineteen year olds have of world affairs.

Another glaring difference is the cadets' position of India and Afghanistan. They both located these countries much more northeast than the officers. They also grouped these countries closer to each other than the officers.

The European countries, Spain, Poland, and Germany are approximately positioned the same on all three maps. This also is best explained by the relationships between the Army and these countries. As earlier stated, Germany hosts many soldiers and is centrally located between Spain and Poland. This close proximity can allow for familiarity of the officers and cadets to the geography of the two countries.

Army Officers' Mental Map

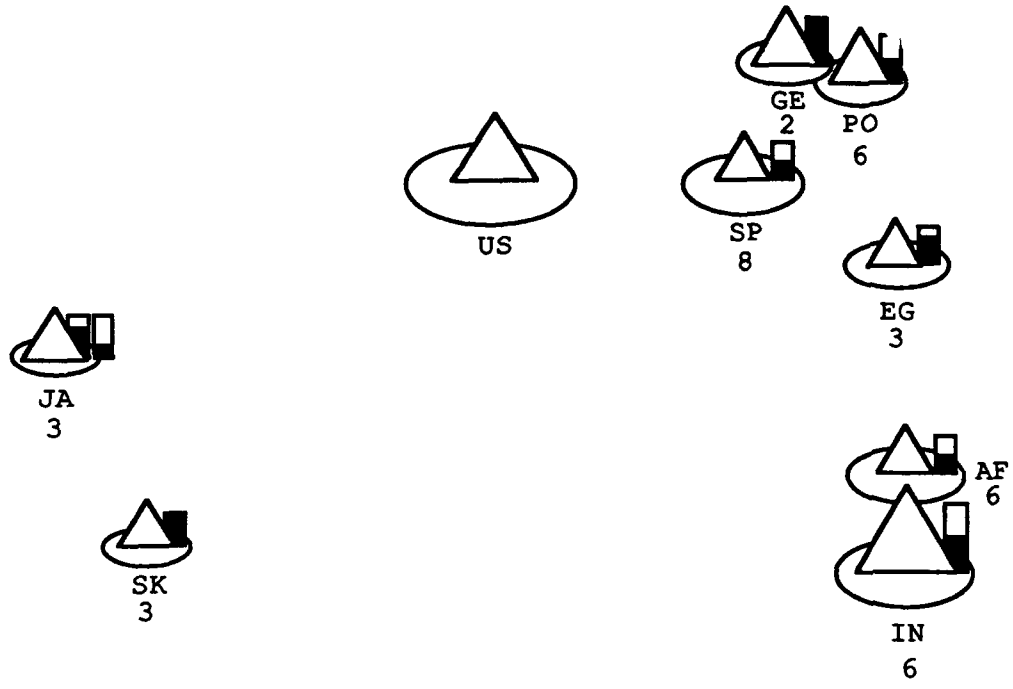


MAP #5

Population--- △ Strategic Value--- # Area--- ⬭

Level of Support--- (2) (3) (4) (5)

First-Year West Point Cadets' Mental Map

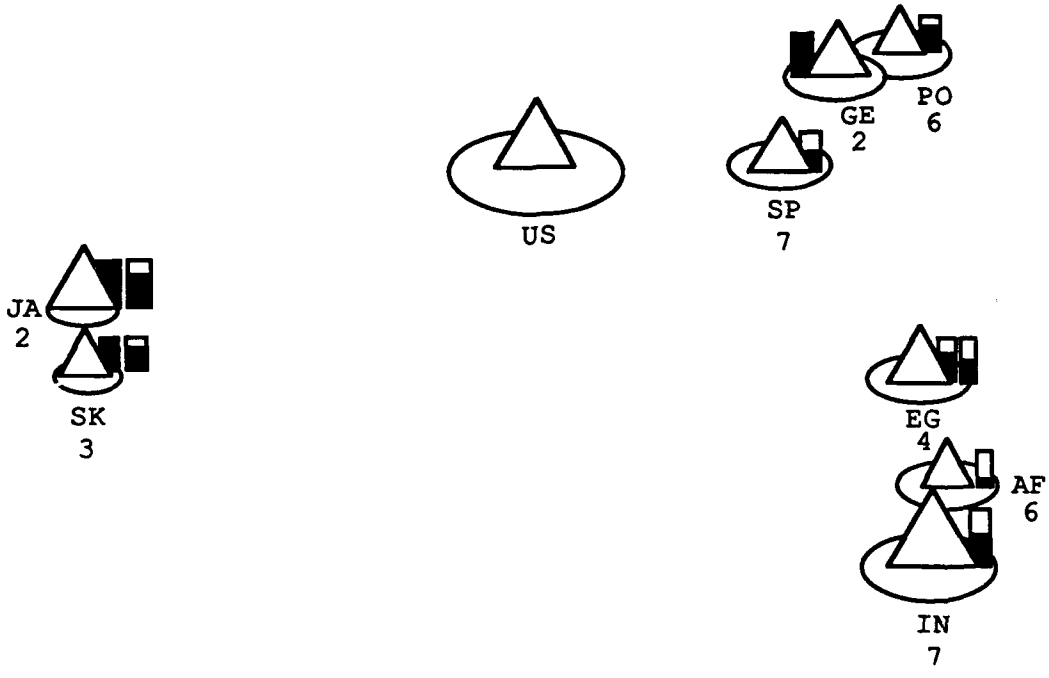


MAP #6

Population--- △ Strategic Value--- # Area--- ⬭

Level of Support--- (2) (3) (4) (5)

Fourth-Year Cadets' Mental Map



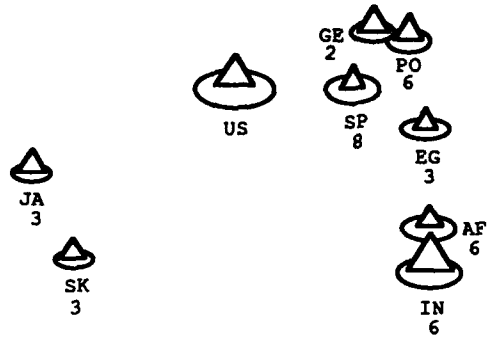
MAP #7

Population--- △ Strategic Value--- # Area--- ⬭

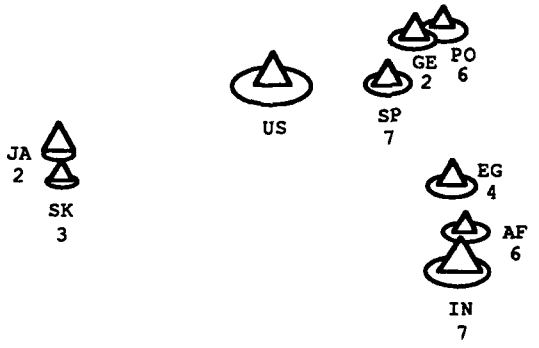
Level of Support--- ▯ ▯ ▯ ▮

(2) (3) (4) (5)

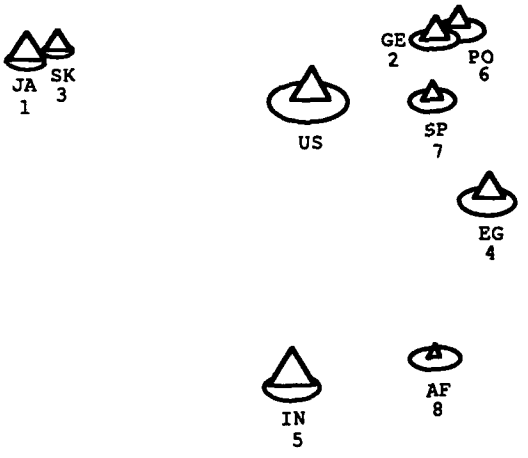
First-Year Cadets' Mental Map



Fourth-Year Cadets' Mental Map



Army Officers' Mental Maps



MAP #8

Population--- △ Area--- ⬭

Strategic Value--- #

A more detailed discussion of each country's perceived image is disclosed in the second part of the second groups' analysis.

A comparison of the composite values and the degree of agreement is indicated by the standard deviation. Absence from this analysis is the discussion of the political and cultural images of the countries. This is not possible because the majority of cadets only provided one word or one phrase describing the countries and many did not provide any answers. It is difficult to provide an explanation of a cadet's political, economical and cultural views of Poland when the only word given to describe it is "sausage".

- **AFGHANISTAN**

Table 14

AFGHANISTAN

	STRAT	DIR.	DIS.	AREA	POP	SPRAT
Army	8	5:20	11.26	3	1	3
STD.DEV.	1.14	3.09	2.36	1.16	0.50	0.66
WP1	6	4:22	9.16	3	3	3
STD.DEV.	1.91	2.44	2.95	1.33	1.09	0.78
WP2	6	4:29	9.39	3	3	2
STD.DEV.	1.51	2.56	3.00	0.90	1.54	0.83

Key: WP1=First year cadet at West Point
WP2=Fourth year cadet at West Point

The differences between the officers and the cadets is noticeable but not extreme. Both cadet groups differ with their senior officer when ranking the strategic value of Afghanistan. The gap of difference not only continues with **Direction**, **Distance** and **Population** but its range is

consistent. Only **Area** is agreed upon between the three groups.

The cadets demonstrated almost identical images of Afghanistan. Even their standard deviations are very similar. The most significant difference is with Afghanistan's level of **Support** for the strategic goals of the U.S. Most of the senior cadets (STD. DEV. is 0.78) think that this neighbor of the former Soviet Union, can be "potentially threatening" (2). Their junior classmates are more aligned with their senior officers. They both evaluate Afghanistan as a "neutral" (3) country towards its' Support toward the U.S.

- **EGYPT**

Table 18

EGYPT

	STRAT	DIR	DIS	AREA	POP	SPRT
Army	4	1:01	7.82	4	4	4
STD.DEV.	1.45	0.89	2.41	1.32	1.29	0.66
WP1	3	3:41	7.44	3	3	4
STD.DEV.	1.97	0.65	2.36	0.76	1.71	0.79
WP2	4	4:00	7.89	3	4	3,4
STD.DEV.	1.22	1.31	2.86	1.26	1.66	1.02

Unlike Afghanistan, the Army officer and senior cadet are very close with the same spatial arrangement of Egypt. They only differ by one minute in **Direction** and seven units in **Distance**. Only **Area** prevents these two images from being almost identical. The fourth-year cadets are also a bit more ambiguous than the officers when they evaluate Egypt's

Support. They equally split between "neutral" (3) and "potentially supportive" (4).

The first-year cadets do agree with the officers' view of Egypt's **Support**. Other than **Distance** this is all that these junior cadets agree with the officers. Both cadet classes are in agreement with the relative value of Egypt's **Area**.

- **GERMANY**

Table 19

GERMANY

	STRAT	DIR	DIS	AREA	POP	SPRT
Army	2	2:16	5.40	3	4	4,5
STD.DEV.	1.74	0.55	2.12	1.16	0.25	1.31
WP1	2	2:26	5.75	3	4	5
STD.DEV.	1.29	0.97	2.07	0.77	0.81	1.14
WP2	3	2:40	5.67	3	4	5
STD.DEV.	1.09	1.57	2.39	1.38	1.60	1.26

Other than the minor measurement difference, all three groups have the same strategic values and geographical images of Germany. The only variation is the level of SUPPORT. The officers equally choose "potentially supportive" and "supportive" to reflect Germany's relationship with the U.S.

The similarity between the three groups is the strongest with Germany. Undoubtedly this is due to strong ties between Germany and the U.S. Army. Officers have numerous opportunities throughout their careers to serve in Germany. Cadets also can choose to be stationed for a portion of their summers in Germany. Most scenarios

developed for training (war games, map reconnaissance exercises, terrain models) are based upon the geography of Germany. The bonds between Germany and the Army are strengthened by the membership of both countries in NATO. Later it will be shown how these strong ties and perhaps affection for Germany can produce an image that is larger than reality (see map 5-8).

- **INDIA**

Table 20

INDIA

	STRAT	DIR	DIS	AREA	POP	SPRT
Army	5	6:14	11.76	4	8	2,3
STD.DEV.	1.44	2.59	2.35	1.16	1.16	0.76
WP1	6	4:50	10.34	5	8	3
STD.DEV.	1.6	2.00	2.92	1.21	2.05	0.66
WP2	7	4:54	10.15	5	7	3
STD.DEV.	1.47	2.29	3.18	1.66	1.48	0.61

The similarity of images of India is not nearly as strong as the Army's image of Germany. The only common similarity between these three mental maps is the level of **Support**. They all strongly agree, India is neutral toward their support of the U.S.

Strategically India varies between the groups. Officers think India is marginally (5) strategic compared to the other countries. West Point cadets give less value for the strategic importance of India.

The cadets are more in agreement with each other than with the officers. They estimate **Area** is the same and their **Direction** and **Distance** are very close. Beside the

aforementioned **Strategic** value the only other disagreement between the cadets is India's **Population.**

They all ranked India as the most populous country but underestimated the volume of its population. The maximum range available for assessing population is nine but the officers and freshmen cadets only evaluated India as eight. The senior cadets further underestimated the population with a ranking of seven. India is approximately three times more populated than the U.S. (see Annex A) but is not estimated appropriately by any respondent.

- **JAPAN**

Table 21

JAPAN

	STRAT	DIR	DIS	AREA	POP	SPRT
Army	1	9:26	10.86	2	5	4,5
STD.DEV.	0.86	0.85	3.26	0.63	1.0	1.45
WP1	3	8:27	8.56	2	4	2,4
STD.DEV.	1.98	2.37	4.29	0.91	2.25	1.25
WP2	2	8:43	8.52	1	5	4,5
STD.DEV.	1.08	1.98	4.56	1.58	1.98	1.32

The image of Japan is interesting because all three groups are undecided over Japan's support for the U.S. The officers and senior cadets are both equally divided between "potentially supportive"(4) and "supportive"(5). First-year cadets straddle the fence by expressing that Japan can be either "potentially threatening"(2) or "potentially supportive"(4).

The officers and senior cadets also agree with the **Strategic** importance of Japan. The officers ranked Japan as

the most significant strategic country (1) as have the senior cadets. The cadets of group, WP2, appear to differ because they ranked no country higher than a two; Japan and Germany are both twos. These cadets also agree with the officers regarding Japan's **Population** and **Support.** The only common image shared by the two classes of cadets are **Direction** and **Distance.**

- **POLAND**

Table 22

POLAND

	STRAT	DIR	DIS	AREA	POP	SPRT
Army	6	2:16	6.37	3	3	3
STD.DEV.	0.94	0.50	2.19	1.11	1.11	0.65
WP1	6	2:49	6.88	3	4	3
STD.DEV.	1.68	2.04	2.66	1.24	1.23	0.84
WP2	6	2:36	6.92	3	3	4
STD.DEV.	1.38	1.85	2.09	1.33	1.25	0.81

Poland's image does not vary much between the three groups. Except for **Population** and **Support** all of the variables are either the same or approximately the same, for the three groups. This is probably due to the lack of attachment between Poland and the U.S. Army. The misrepresentation of Poland's geographic features is most likely connected to a low degree of exposure to this former WARSAW member, for both officers and cadets.

Before the collapse of communism in Eastern Europe, the U.S. Army discouraged travel to Poland and other Warsaw countries. While never an official policy, regulations,

documentation requirements, and commanders' influence discouraged soldiers from traveling in Eastern European countries.

- **SOUTH KOREA**

Table 23

SOUTH KOREA

	STRAT	DIR	DIS	AREA	POP	SPRT
Army	3	9:39	9.77	1	3	5
STD.DEV.	1.28	0.63	2.79	0.0	1.26	1.12
WP1	3	7:46	9.17	2	3	5
STD.DEV.	1.52	2.50	3.57	1.16	1.66	1.18
WP2	3	8:19	8.98	1	3	4,5
STD.DEV.	1.59	2.03	4.07	0.64	2.01	1.15

The major distinctions between the three images of South Korea is its **Direction** from the U.S. (see Map 8). The cadets' large standard deviation (2.50 and 2.03) indicates less clustering around the median but their estimations are closer to each other than to the officers. The difference in the cadets' Direction is only thirty-three minutes. Their difference with the war college students is one hour fifty-five minutes and one hour twenty-three minutes, respectively.

Unlike Poland, South Korea has strong ties with the Army. As with Germany, officers and cadets have numerous opportunities to be stationed in this country. The export of Korean culture to the U.S. is easily seen about any Army post. There are Korean churches, Korean grocery stores, Korean social clubs, and a noticeable population of Korean wives. These ties have produced a standard deviation of

zero for the officers' estimation rank of Korea's AREA. There is no disagreement among the surveyed officers that South Korea is the smallest country of eight listed.

- **SPAIN**

Table 24

SPAIN

	STRAT	DIR	DIS	AREA	POP	SPRT
Army	7	3:03	4.67	3	2	3
STD.DEV.	1.12	0.59	2.05	0.50	0.00	0.51
WP1	8	3:00	4.48	4	3	3
STD.DEV.	1.69	0.87	2.08	0.73	1.08	0.78
WP2	7	3:03	4.42	3	4	4
STD.DEV.	1.25	1.22	2.32	1.26	1.25	0.85

Contrary to South Korea, there is only a three minute difference between all three groups' **Direction** of Spain. Even within each group the standard deviation is fairly low, indicating a strong agreement among all respondents with regard to the direction of Spain from the U.S.[11]

Another unique feature of the three images of Spain is the relative ranking of **Population.** The officers are in complete agreement with each other of Spain's relatively small population. The junior cadets appraise Spain's population as relatively larger (3) than the officers' estimation (2). The senior cadets place even more emphasis on the size of Spain's population (4).

[11]For the fourth year cadets' their standard deviation of 1.22 is in the 18th percentile.

Comparison to Reality

As with the similar chapter comparing estimated and actual values between the war college students, this comparison is not intended to validate or find fault with the images. The purpose of the comparison is to provide some meaning to the relative measurements by providing actual measurements.

Table 25
AREA

ESTIMATE/ACTUAL	Army	WP1	WP2
AFGHANISTAN	3/3(=)	4/3(+)	3/3(=)
EGYPT	4/3(+)	3/3(=)	3/3(=)
GERMANY	3/2(+)	3/2(+)	3/2(+)
INDIA	4/5(-)	5/5(=)	5/5(=)
JAPAN	2/2(=)	2/2(=)	1/2(-)
POLAND	3/2(+)	3/2(+)	3/2(+)
SOUTH KOREA	1/1(=)	2/1(+)	1/1(=)
SPAIN	3/2(+)	4/2(+)	3/2(+)

Key: (=) estimation and actual values match
(+) overestimated
(-) underestimated
The value given to the United States is six (6)

Number of Countries

	Overestimated	Matched	Underestimated
Army	4	3	1
WP1	5	3	0
WP2	3	4	1

Table 26
POPULATION

ESTIMATE/ACTUAL	Army	WP1	WP2
AFGHANISTAN	1/1(=)	3/1(+)	3/1(+)
EGYPT	4/3(+)	3/3(=)	4/3(+)
GERMANY	4/3(+)	4/3(+)	4/3(+)
INDIA	8/9(-)	8/9(-)	7/9(-)
JAPAN	5/4(+)	4/4(=)	5/4(+)
POLAND	3/2(+)	4/2(+)	3/2(+)
SOUTH KOREA	3/2(+)	3/2(+)	3/2(+)
SPAIN	2/2(=)	3/2(+)	4/2(+)

Key: (=) estimation and actual values match
(+) overestimated
(-) underestimated

The value given to the United States is six (6)

Number of Countries:

	Overestimated	Matched	Underestimated
Army	5	2	1
WP1	5	2	1
WP2	7	0	1

Table 27
DISTANCE
Ranking of Countries by their direct line distance from the U.S.

	Actual Order	Army	WP1	WP2
closest	Spain	Spain	Spain	Spain
	Germany	Germany	Germany	Germany
	Poland	Poland	Poland	Poland
	Egypt	Egypt	Egypt	Egypt
	Japan	**South Korea**	**Afghanistan**	Japan
	Afghanistan	**Japan**	**India**	**South Korea**
	South Korea	**Afghanistan**	**Japan**	**Afghanistan**
furthest	India	India	**South Korea**	India

Bold indicates a difference in the order of the estimated distance compared to the order of the actual distance.

Table 28
DIRECTION
In clock units

;TIMATE/ACTUAL	ARMY	WP1	WP2
:GHANISTAN	5:20/3:03	4:22/3:03	4:29/3:03
;YPT	4:01/3:12	3:41/3:12	4:00/3:12
:RMANY	2:16/2:39	2:26/2:39	2:40/2:39
IDIA	6:14/3:11	4:50/3:11	4:54/3:11
\PAN	9:26/8:59	8:27/8:59	8:43/8:59
)LAND	2:16/2:40	2:49/2:40	2:39/2:40
XUTH KOREA	9:39/8:58	7:46/8:58	8:19/8:58
>AIN	3:03/2:57	3:00/2:57	3:03/2:57

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Implications

An examination of various countries and their relative values has provided a window to see how U.S. military officers and cadets have judged these countries. By analyzing these mental maps and their geopolitical opinions this can have implications in the planning of military affairs. If this sample of Navy officers is a true representation of the Navy, then their concern with India's potentially threatening status could have a severe impact upon the Navy's strategy and planning, on a global scale. The consistent underestimation of India's population can also indicate a flaw in military planning.

Future

This project is an extension of Richard Eaton's work (Eaton, 1985) and it can be expanded. In addition to the similarity of surveying military officers and mapping their geopolitical images of countries, General Eaton's project and this study have sought to understand 'why' they arranged the world in a certain fashion. General Eaton's explanation of the subject's images, was linked to the countries' physical, psychical and instrumental features. His thesis was based upon these factors as a contributing source for a country's perceived image. This project linked other geopolitical factors, the country's imagined support for U.S. goals and its perceived strategic value to the U.S. This examination and its value can be applied to other

professions giving even more insight to how the world is mentally arranged. It would be very interesting to compare military mental maps with the mental maps of the people involved with statecraft. Also the mental maps of the executives of multi-national corporations could provide for an intriguing study.

Conclusion

It is important to know the factual information of our world but it is equally important to appreciate the relative values people have of places. This appreciation will give a better understanding of the relationship between the peoples of the world. Mark Blacksell, underscores the value of mental maps in The Dictionary of Human Geography .

> Mental maps (either implicit as innate unconscious elements of mental structuring or explicitly revealed in cartographic display) are important to geographers not only as a means of examining an individual's area of SPATIAL PREFERENCE, but also as an insight into the process whereby decisions are made, opportunities perceived and goals determined and satisfied (Johnston, ed.,1991,p.295).

It will also provide an insight as to how judgments are derived, how countries are ranked and how we view ourselves through viewing others. The images of places are important as "we link together our various perceptual spaces whose contents vary from persons to person and from time to time, as parts of one public spacio-temporal order..." (D. Hawkins, The Language of Nature).

APPENDICES

Annex A.1

AREA

The relative values associated with the actual square miles is not based upon a mathematical formula. The basis for categorizing the factual data into five various groups is arbitrarily. Although equally applied across the board this method does weaken any exact comparison but the intent is to provide a sense of weight to the relative values.

Table 29

Country	Actual Square Miles[12]	Corresponding Value
UNITED STATES	3,679,245	6
INDIA	1,237,062	5
EGYPT	386,662	3
AFGHANISTAN	251,826	3
SPAIN	194,885	2
JAPAN	145,870	2
GERMANY	137,855	2
POLAND	120,738	2
SOUTH KOREA	38,025	1

[12]As provided by Goode's World Atlas (1990) Combined area for East and West Germany

Annex A.2

POPULATION

The relative values associated with actual population is fashioned in the same manner as the relative values for area (see Annex A.1).

Table 30

Country	Actual Population[13]	Corresponding Value
India	825,000,00	9
United States	247,410,000	6
Japan	123,010,000	4
Germany[14]	77,962,000	3
Egypt	52,490,000	3
South Korea	42,840,000	2
Spain	39,330,000	2
Poland	37,955,000	2
Afghanistan	14,655,000	1

[13]As provided by Goode's World Atlas (1990)
[14]Combined population of East and West Germany

ANNEX A.3

DISTANCE

Direct line distance from St. Louis to the capital of each country. The order of countries is from the closest to the furthest away from St. Louis.

Table 31

Country	Actual Direct Line Distance (in miles)[15]
Spain	4,504
Germany	4,891
Poland	5,181
Egypt	6,532
Japan	7,498
Afghanistan	7,649
South Korea	7,663
India	8,211

[15]As determined by G.L. Fitzpatrick and M.J. Modlin (1986)

ANNEX A.4

DIRECTION

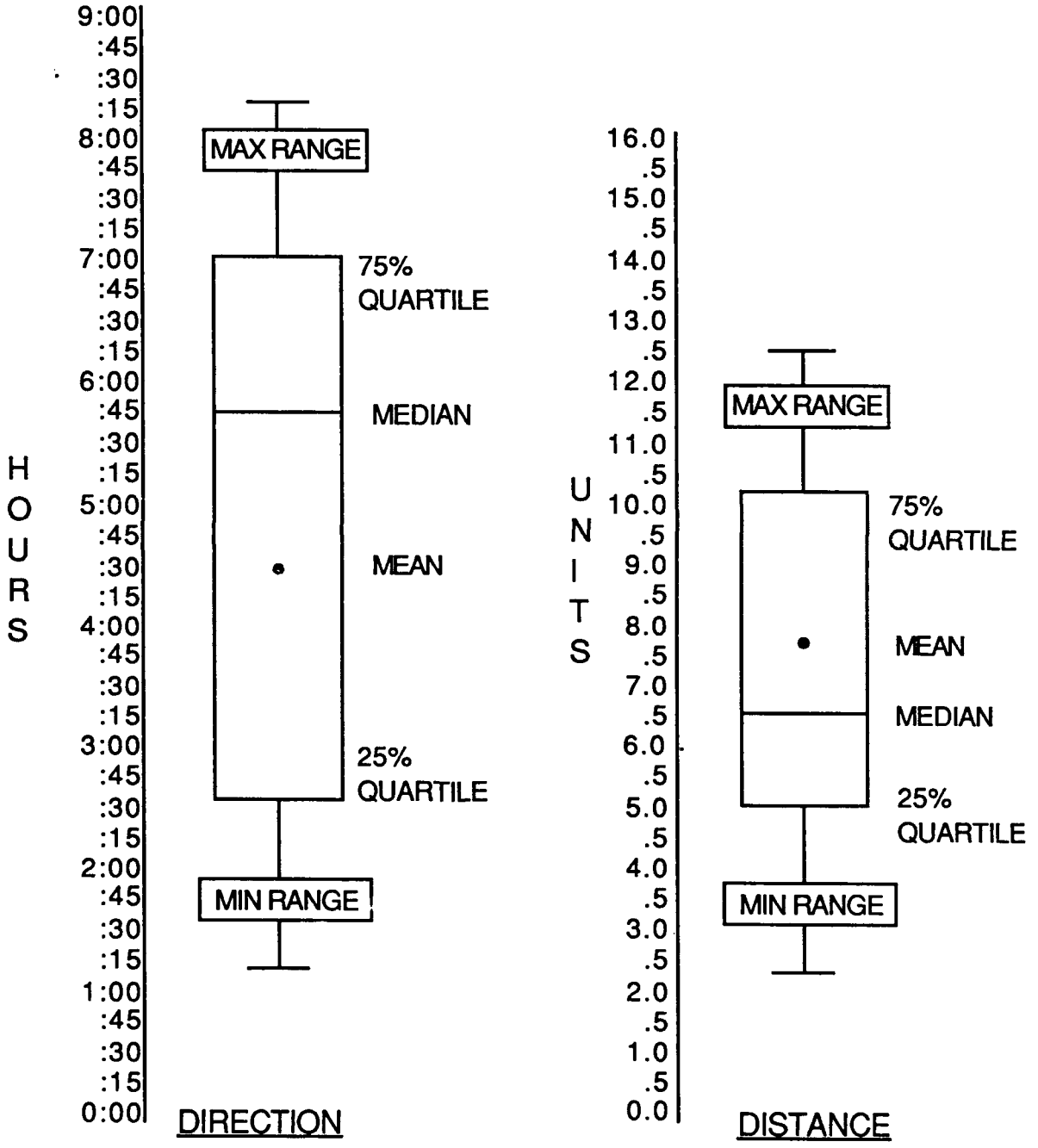
Direction determined by measuring the degrees from St. Louis to the center of each country[16]. Center of the countries were chosen because it has the best chance of being closest to the same location of the subject's image.

Table 32

Country	Degrees from St. Louis	Clock Direction
Afghanistan	91.7°	3:03
Egypt	96.0°	3:12
Germany	79.5°	2:39
India	95.6°	3:11
Japan	269.7°	8:59
Poland	80.0°	2:40
South Korea	269.3°	8:58
Spain	88.5°	2:27

[16]The map used to measure direction was Rand McNally with a Mercator Projection. The distortion of this projection is minimal because the countries are located on a general East-West line. The range of direction is only from 79.5°-96.0°and from 269.3°-269.7° (89.3°-89.7°).

KEY TO BOX-PLOT SYMBOLS



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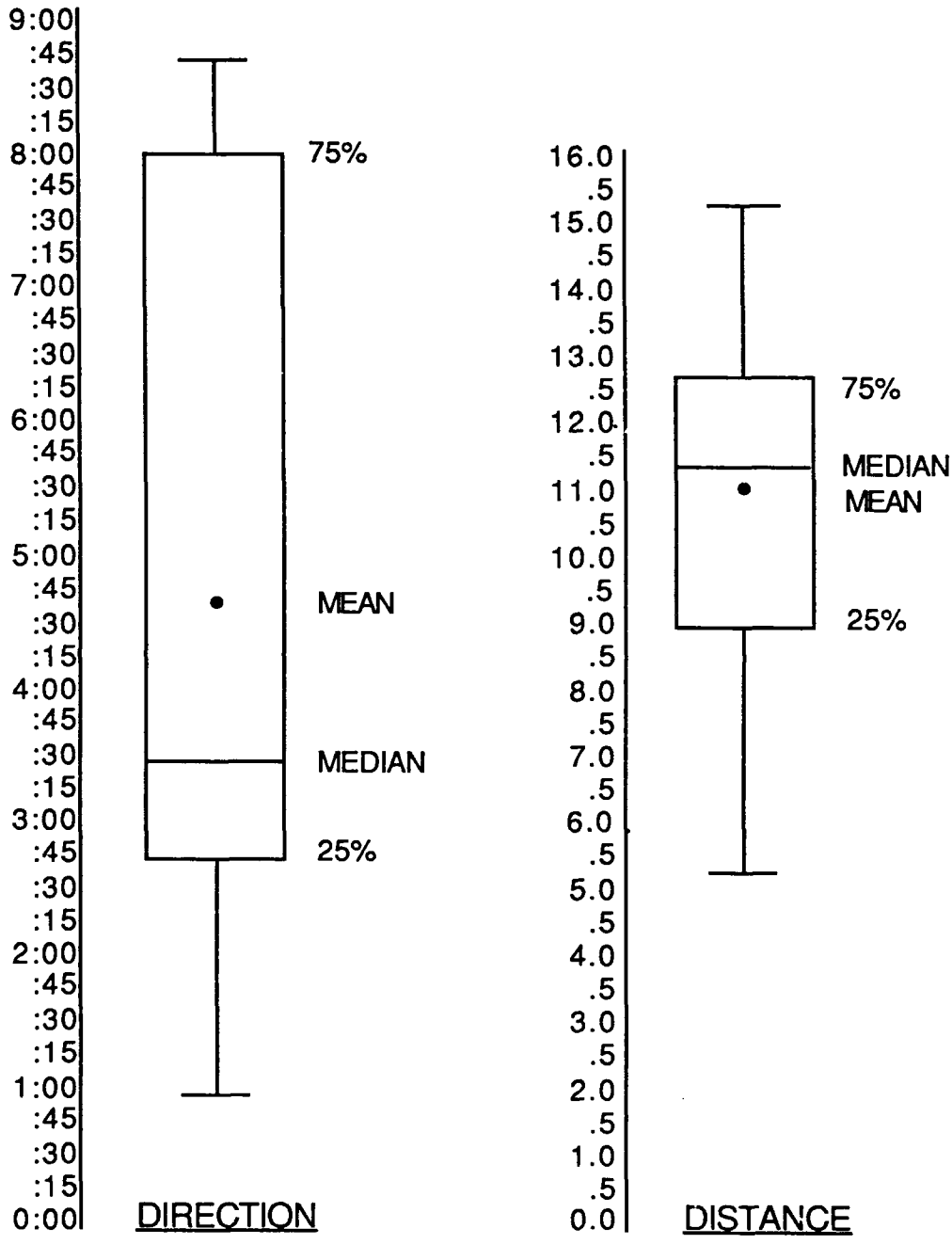

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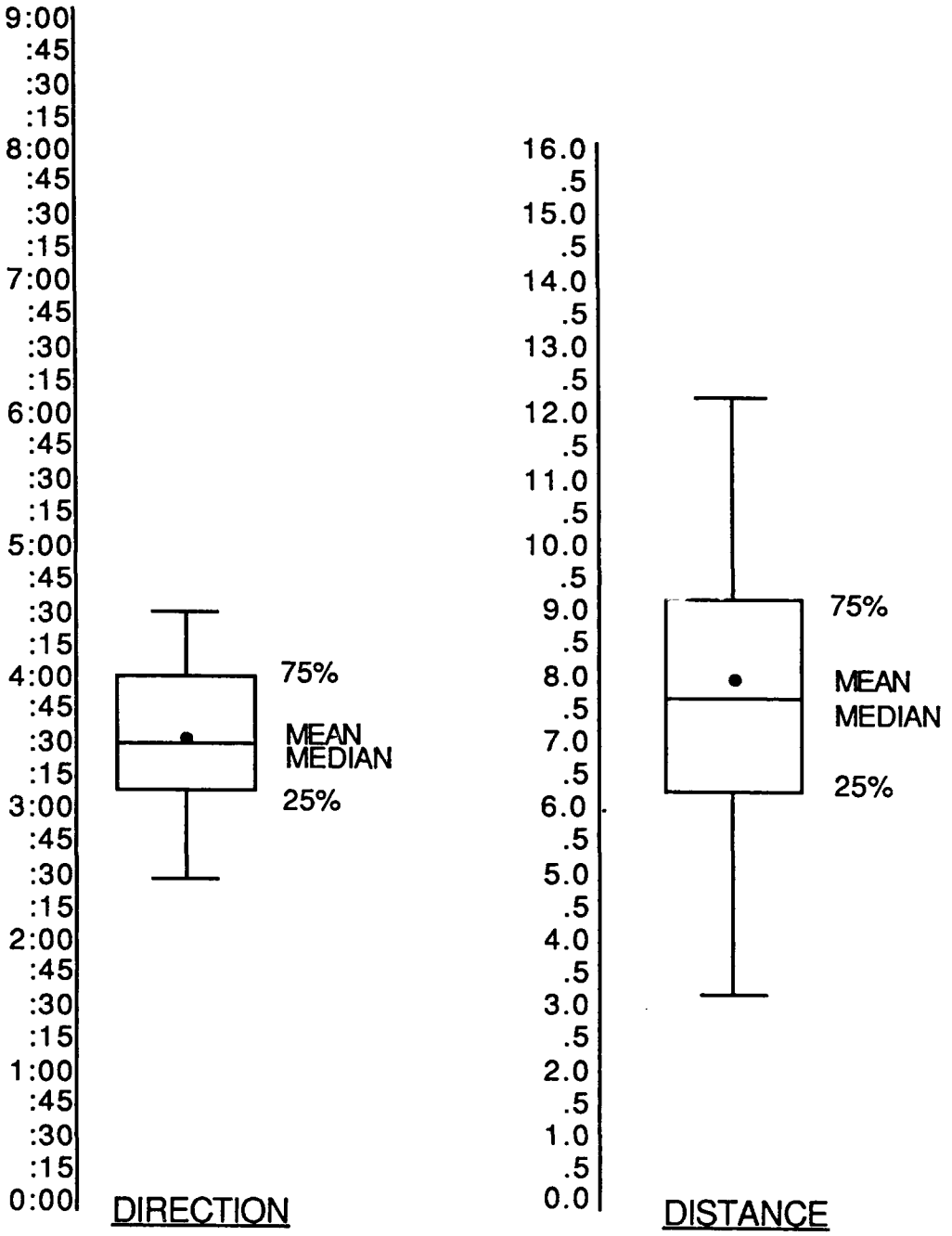

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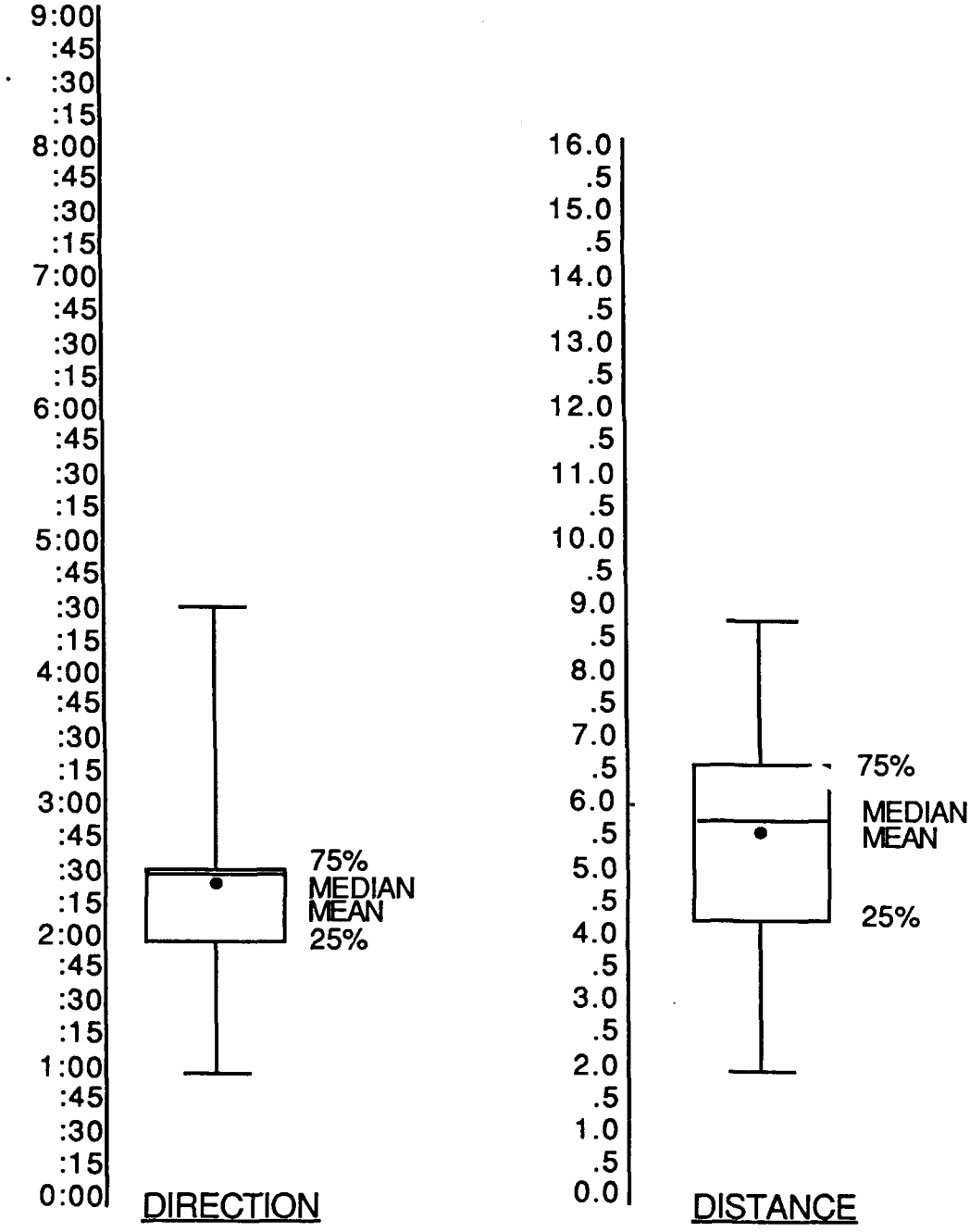

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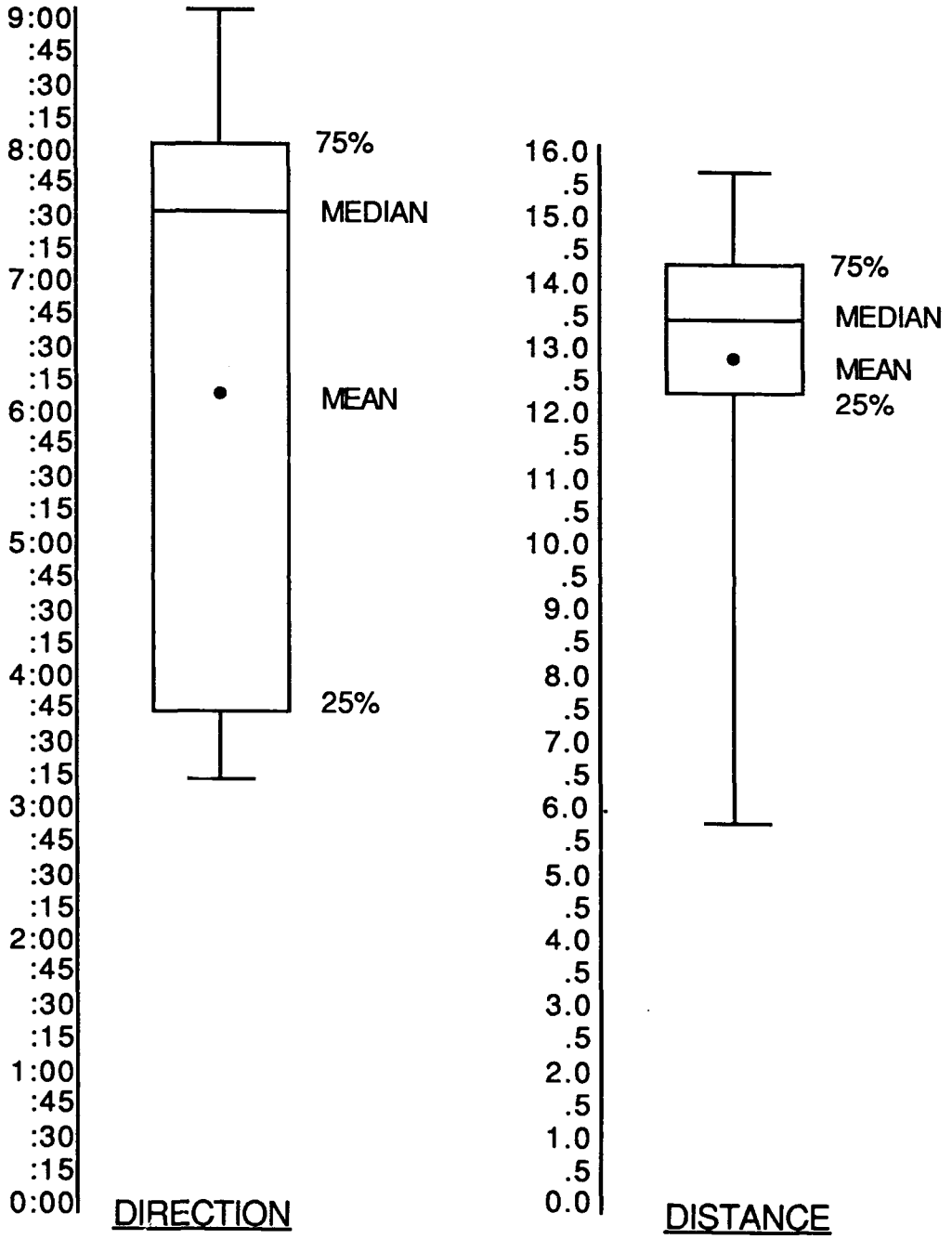

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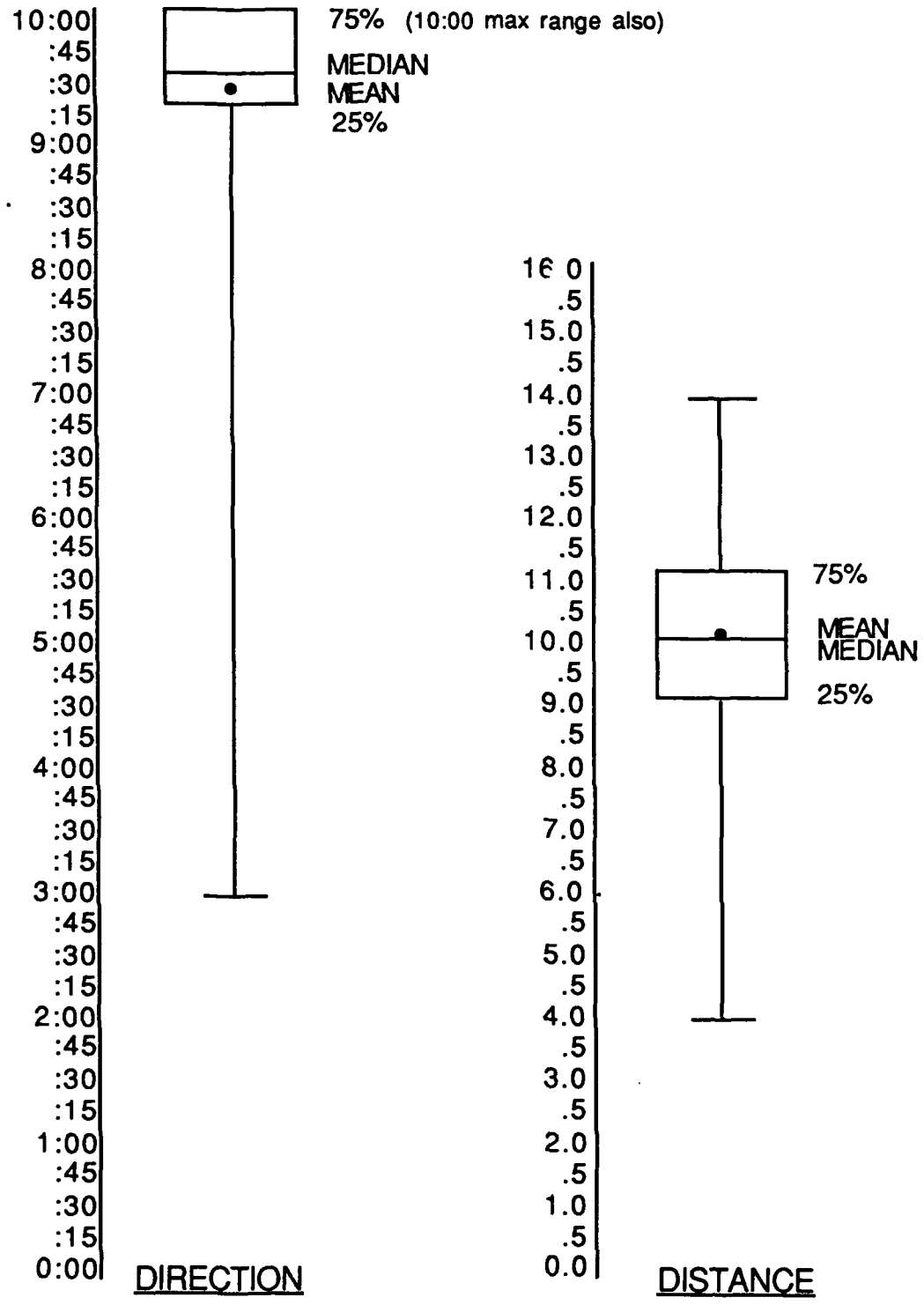

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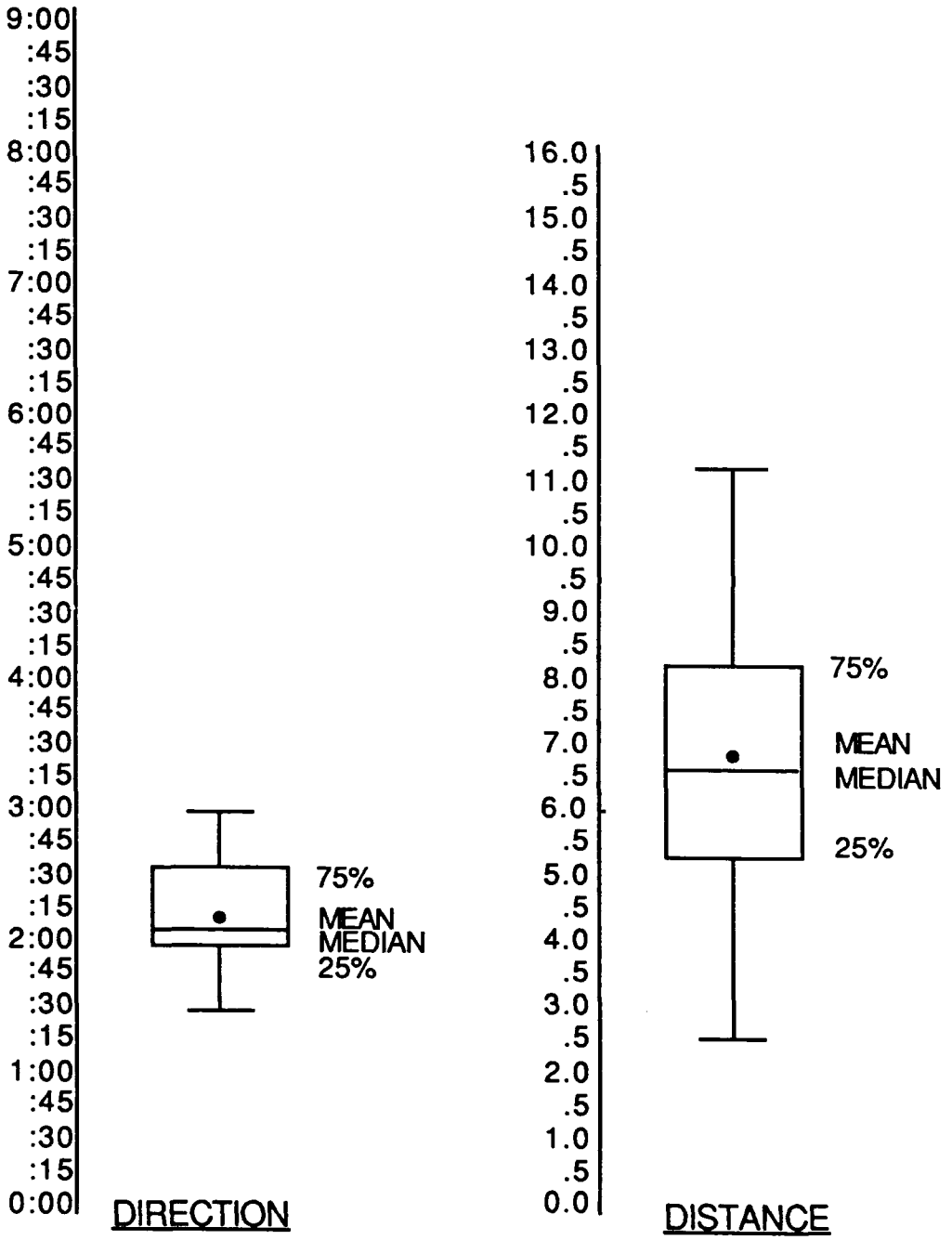

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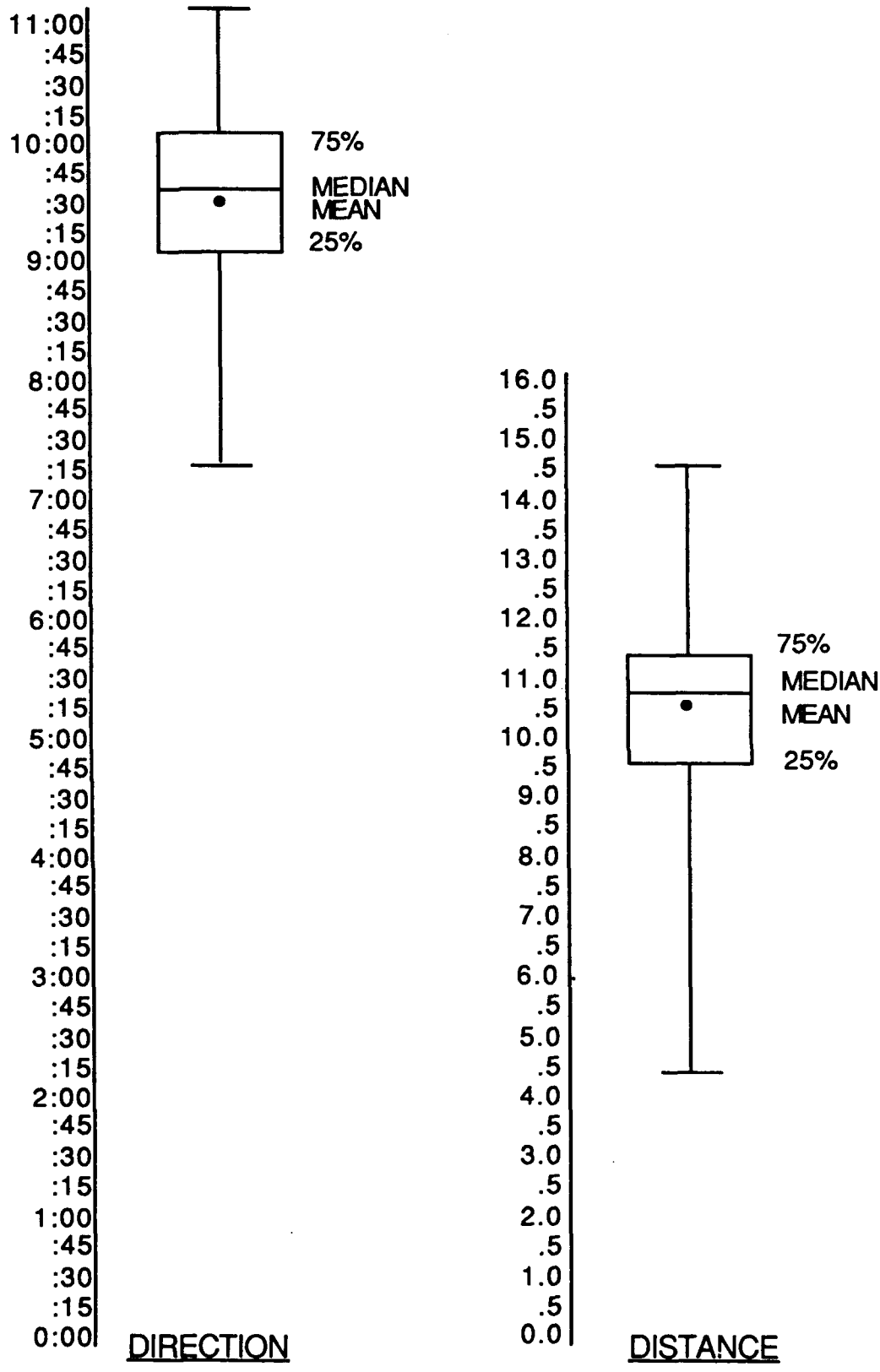

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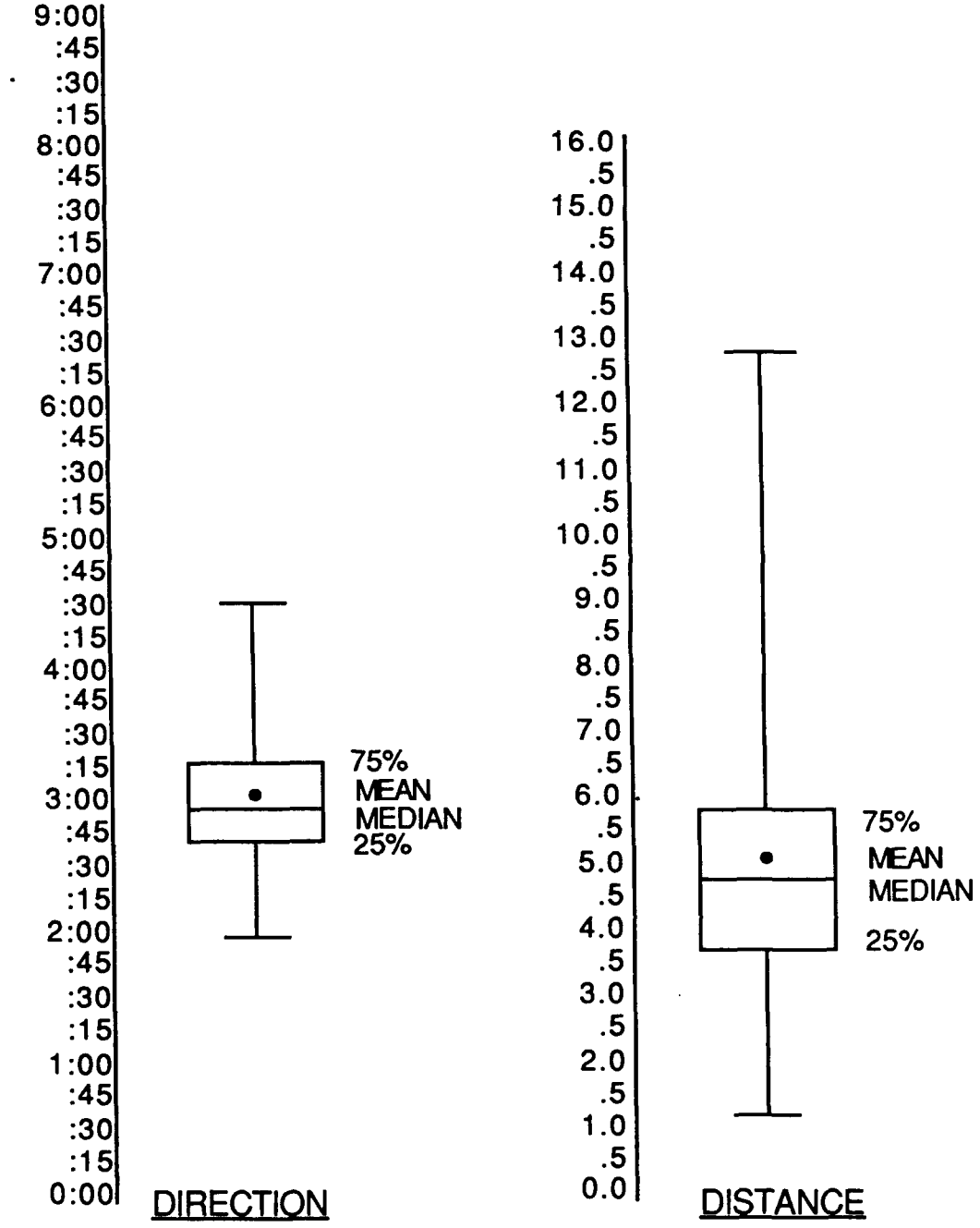

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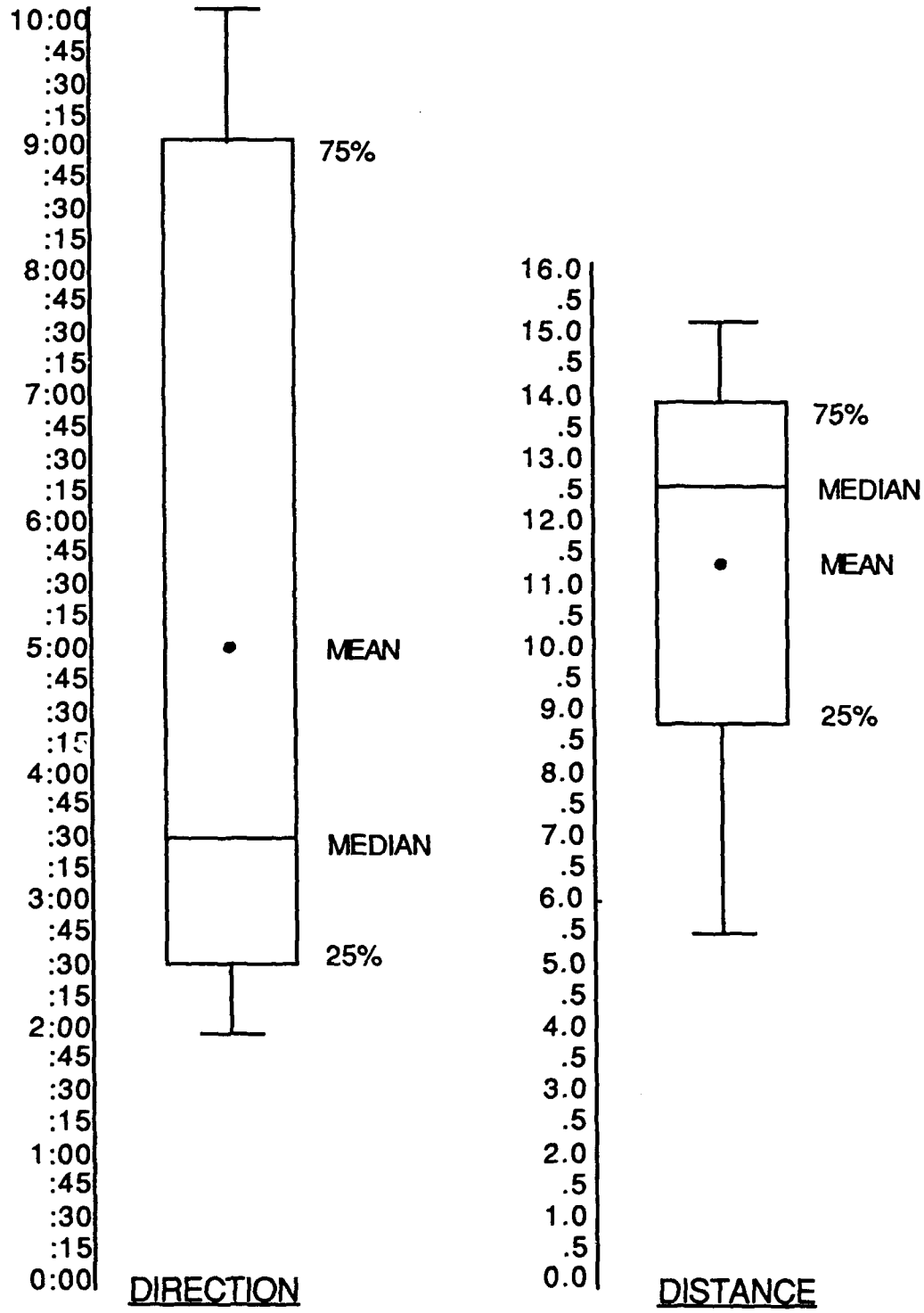

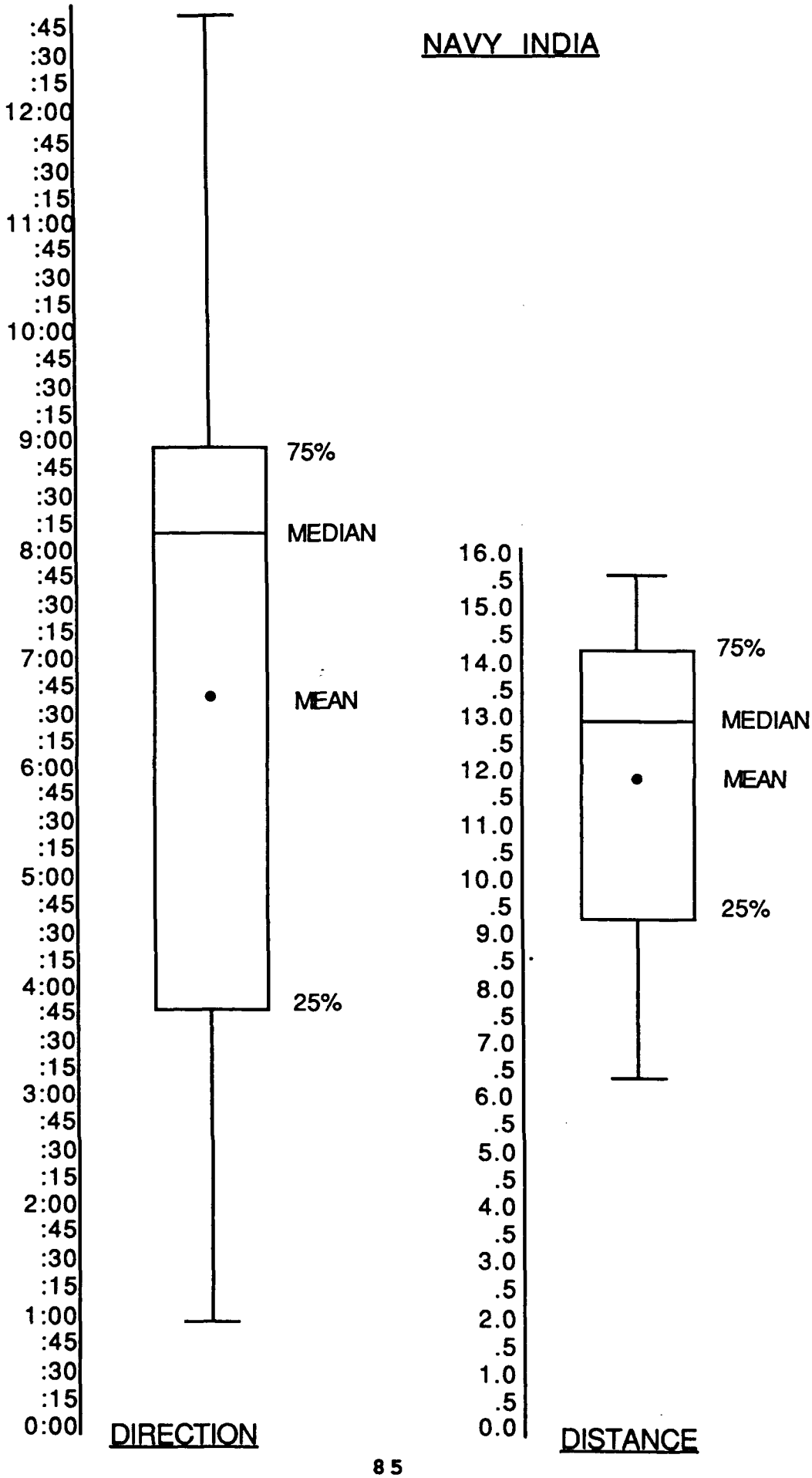
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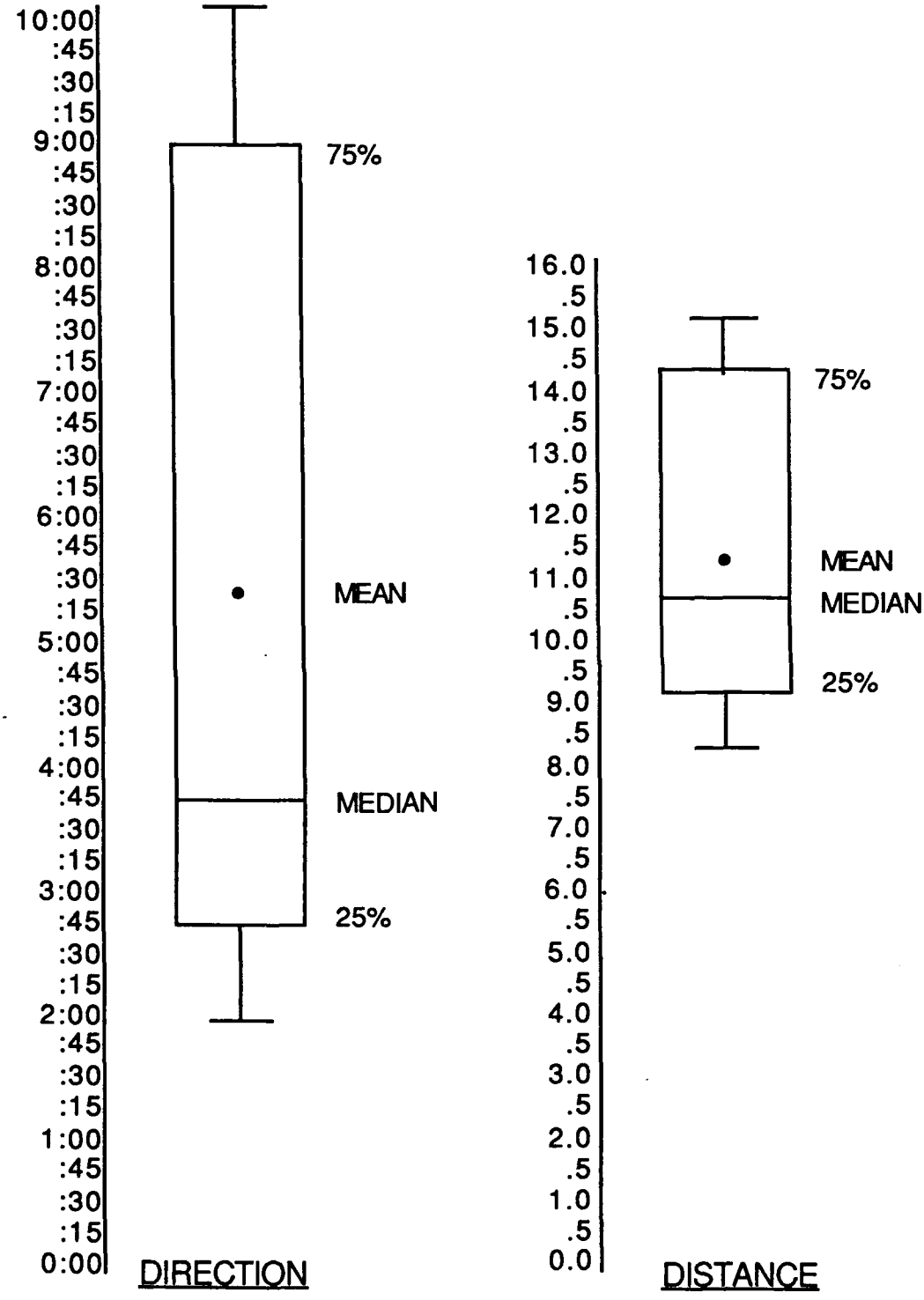

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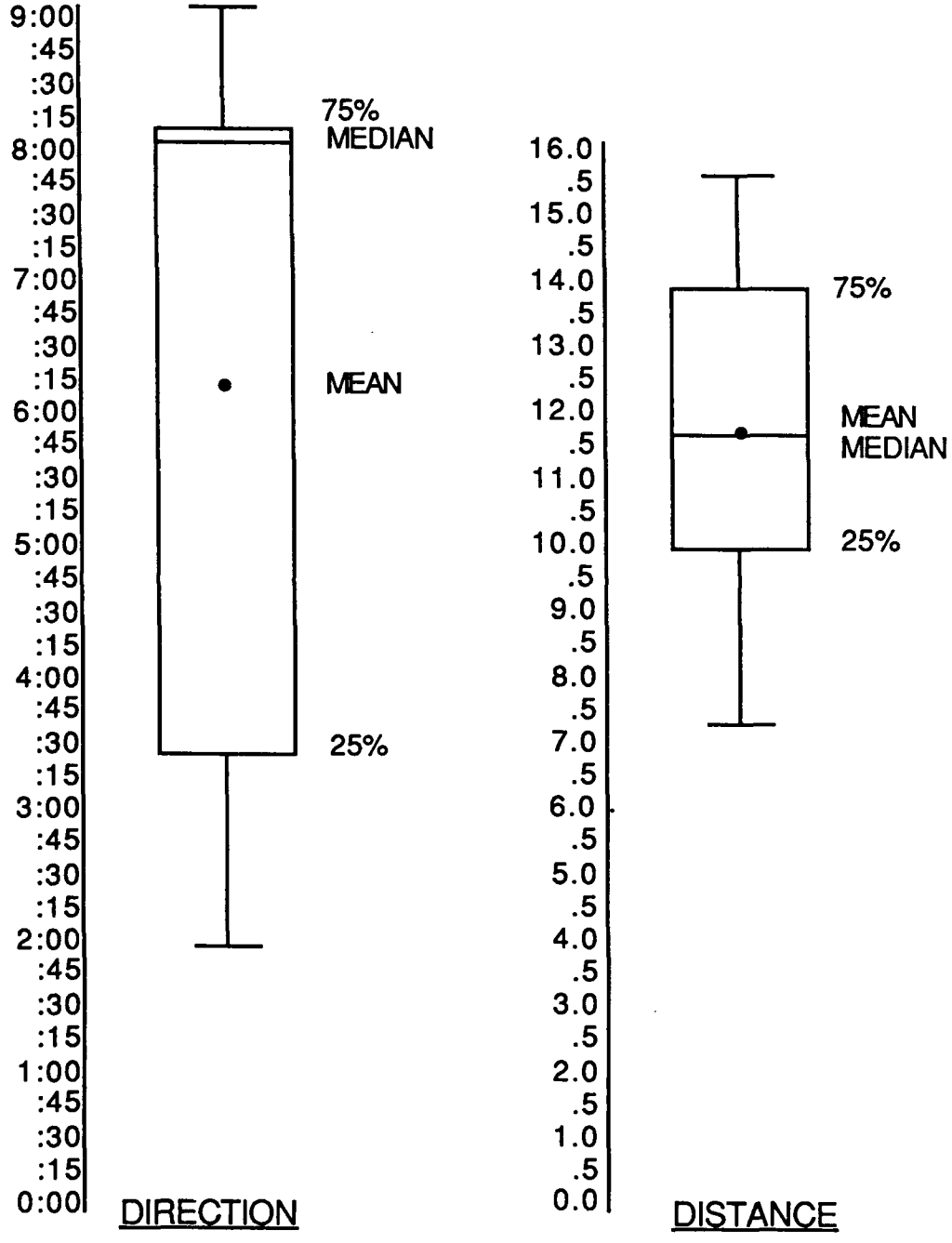
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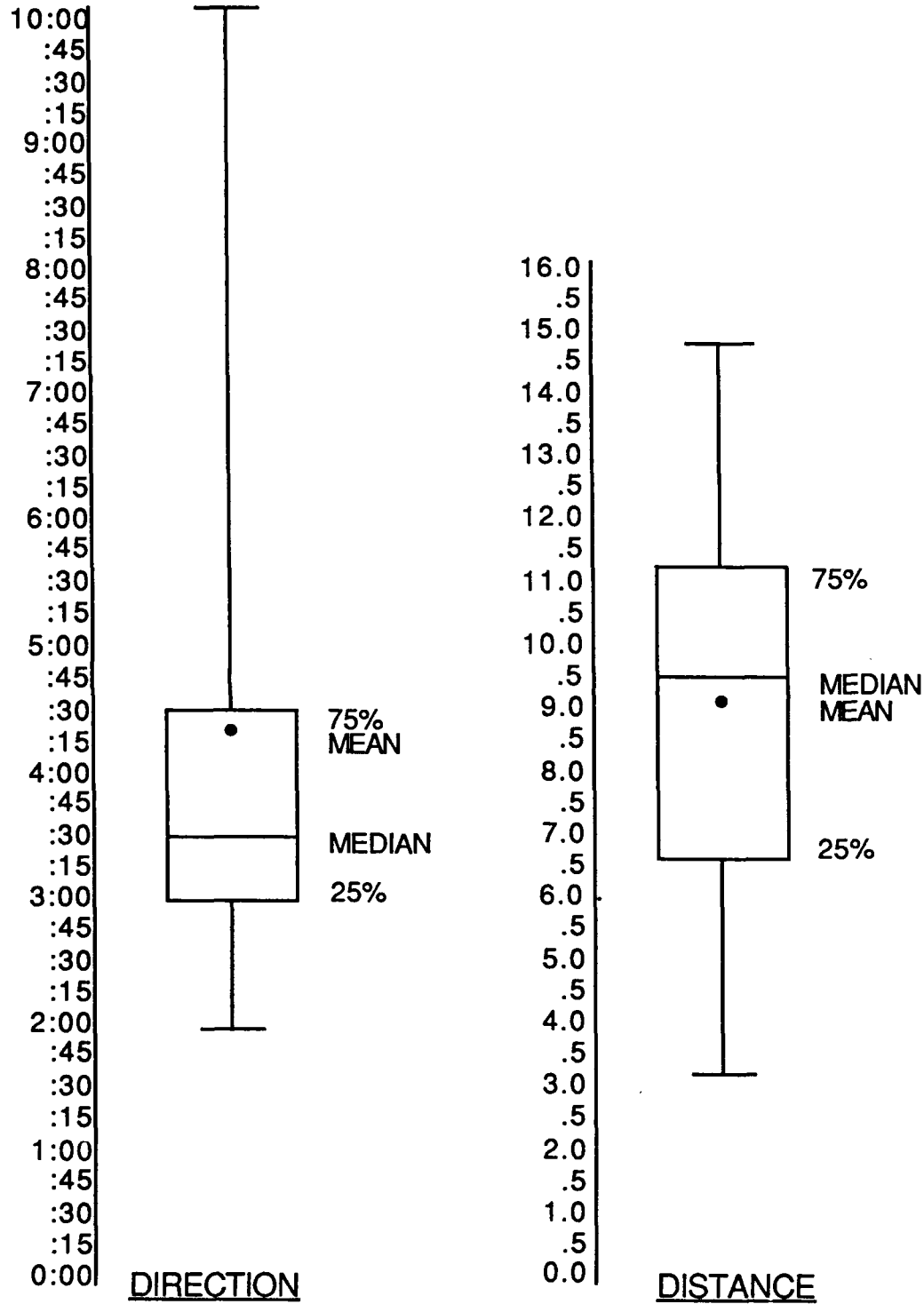
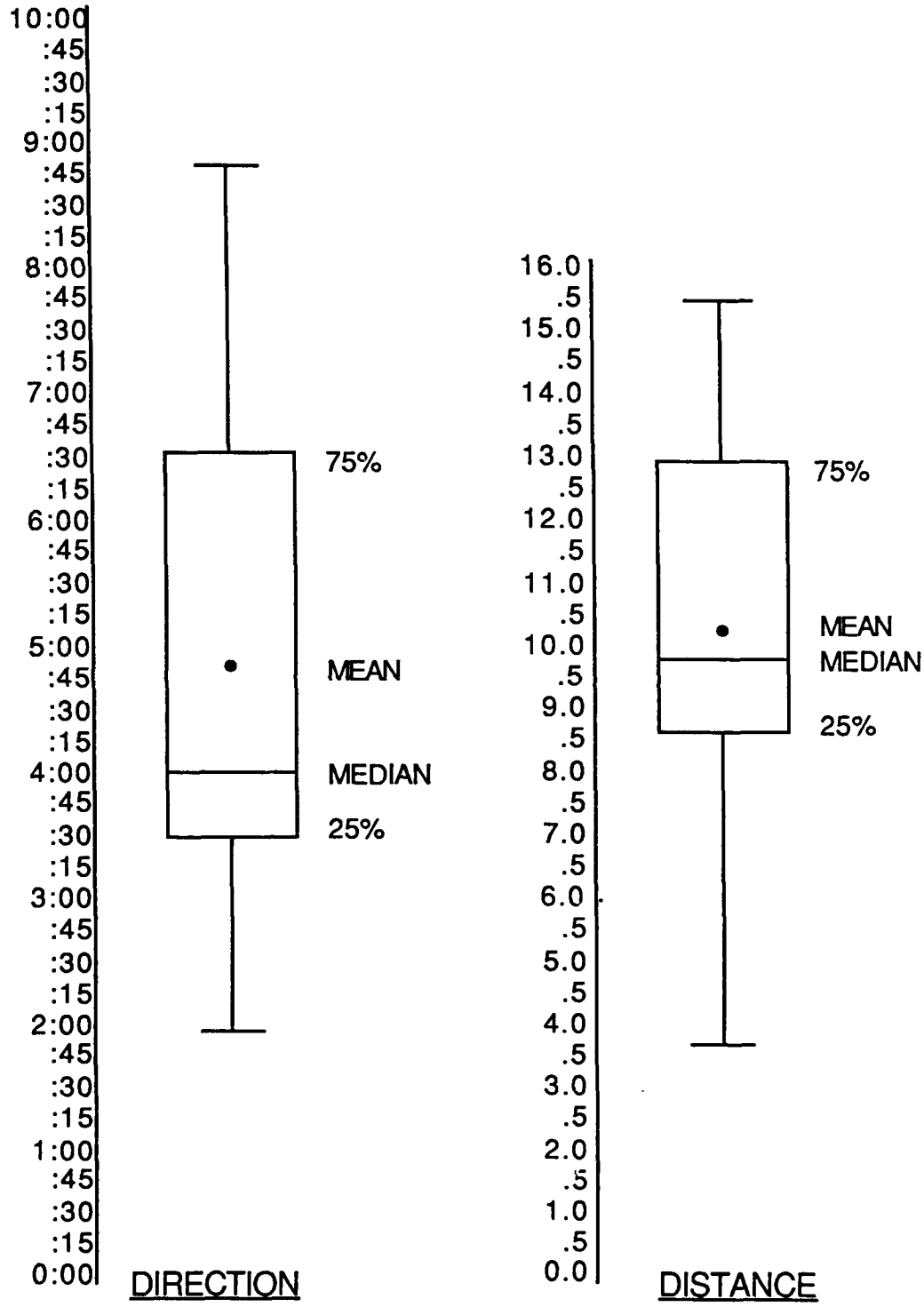
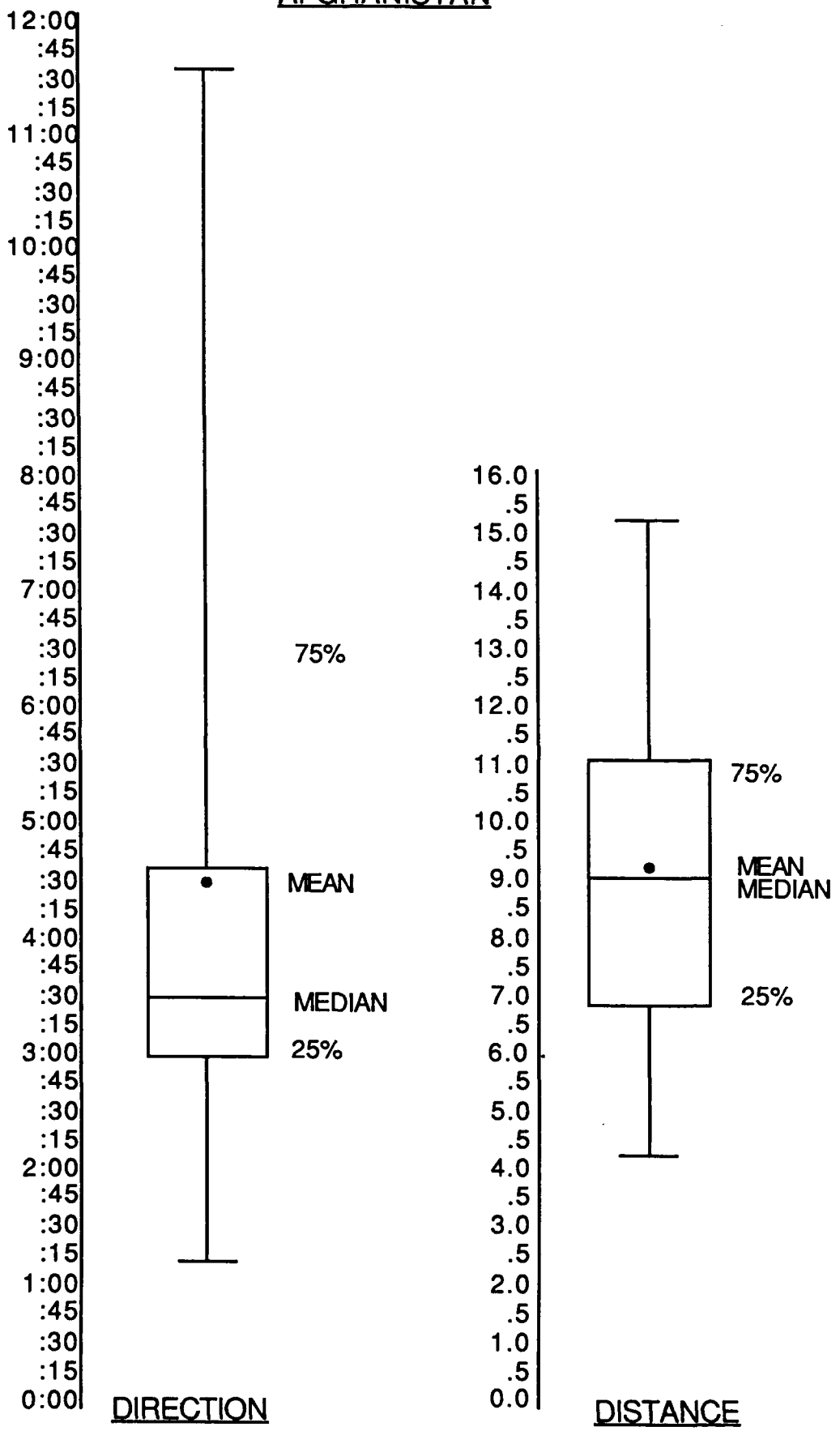
INDIA



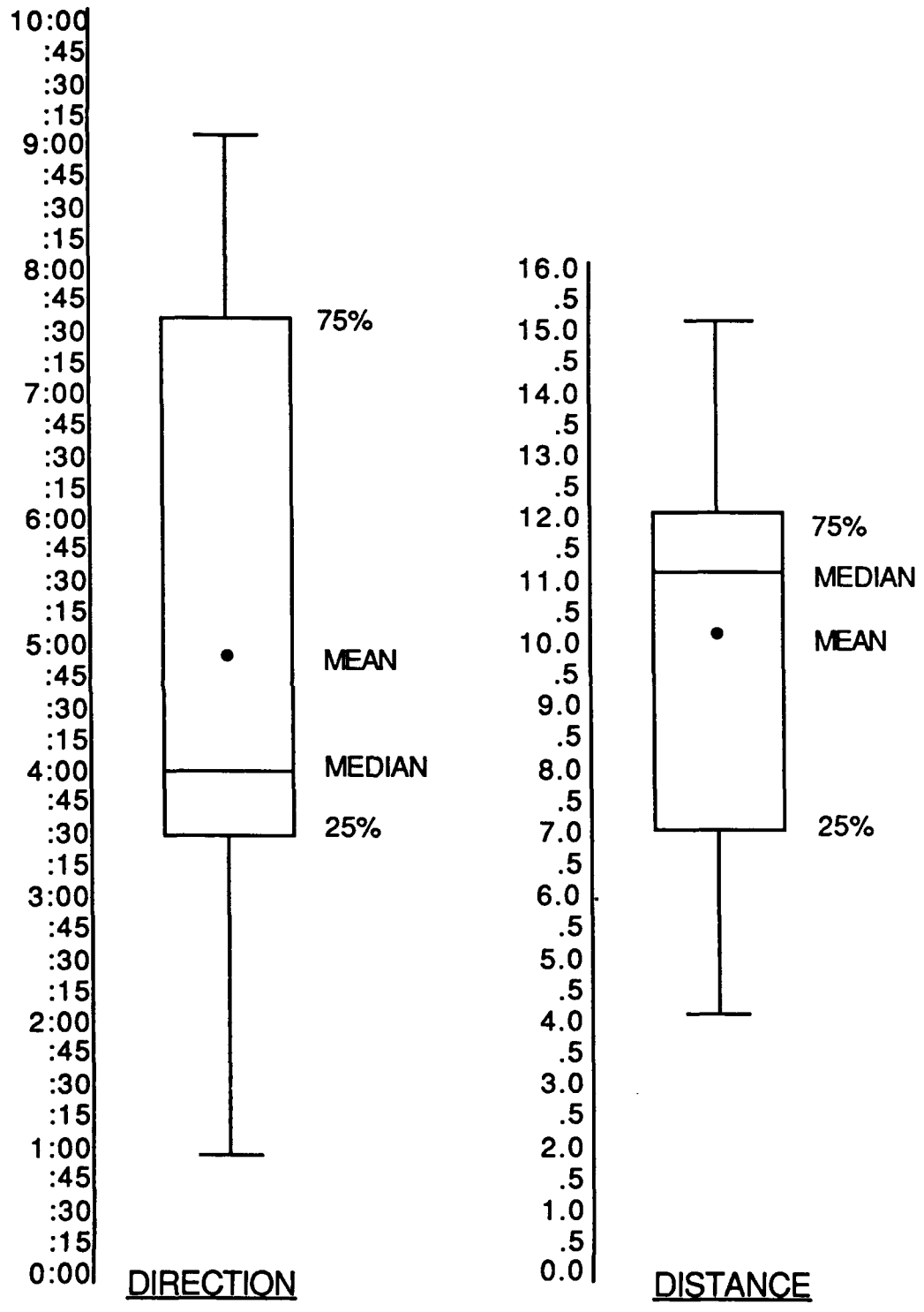
WEST POINT - 1st YEAR
INDIA



WEST POINT - 2nd YEAR
AFGHANISTAN



WEST POINT 2nd-YEAR
INDIA



Purpose. The objective of this survey is to develop a graphic depiction of mental images of the world held by officers in the U.S. Army, Navy, and Air Force. There are no right or wrong answers to any of the questions in this survey. Feel free to make any marks or notes that may assist you in graphing your mental map.

Requirement. In our minds, each of us has arranged the world as he or she has seen or heard of it. No one mental map will be the same because our diverse exposures and experiences influence how we visualize the world.

THROUGHOUT THE SURVEY **THE SAME NUMBER CAN BE REPEATED.**

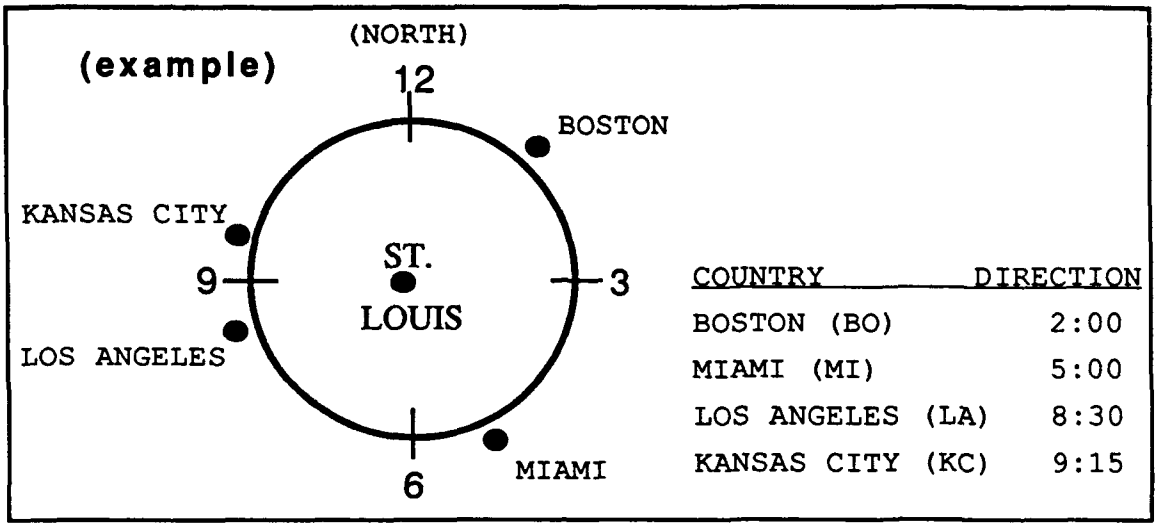
A. Ranking of Countries.

The countries listed below, in alphabetic order, are used throughout this survey. Rank each country according to its strategic importance to the United States. Rank the countries from one (1) to eight (8) with one being the most strategically significant country and eight the least.

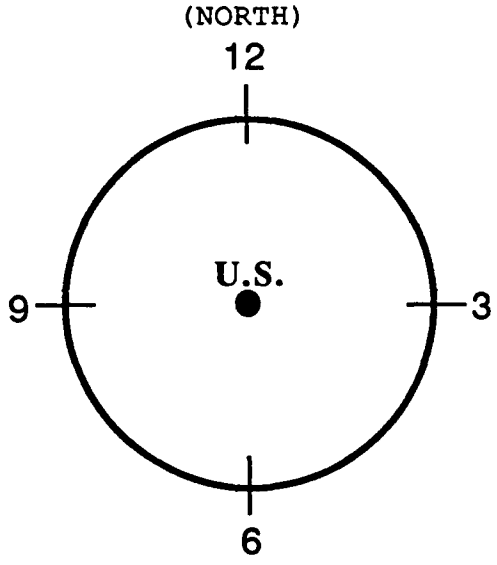
	AF	NV	AR	WP1	WP2		AF	NV	AR	WP1	WP2
AFGHANISTAN	8	8	8	6	6	JAPAN	1	1	1	3	2
EGYPT	4	4	4	3	4	POLAND	6	6	6	6	6
GERMANY	2	2	2	2	2	S.KOREA	3	4	3	3	3
INDIA	6	5	5	6	7	SPAIN	7	6	7	8	7

B. Location of Countries.

1. *Direction*. Position the United States in the center of your mental map and determine the **direction** of the eight countries, relative to the U.S. Superimpose an imagine of a clock over your map and describe, with clock numbers, the position of the eight countries. Use the abbreviations of the countries and place a dot indicating the **direction** of the countries and record.

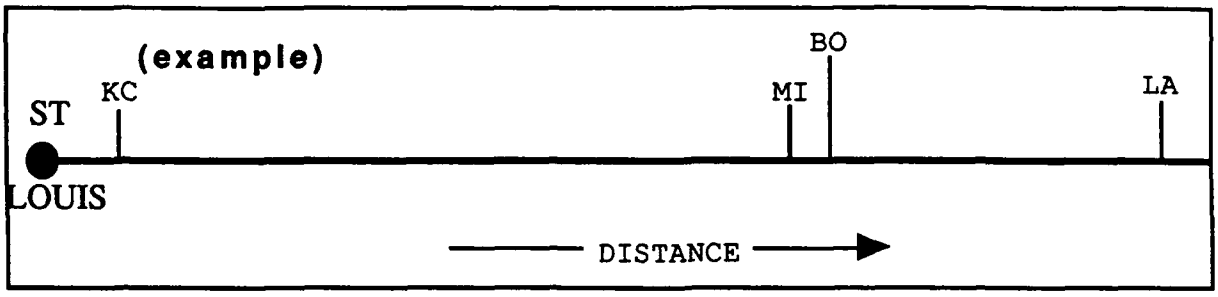


COUNTRY	DIRECTION
BOSTON (BO)	2:00
MIAMI (MI)	5:00
LOS ANGELES (LA)	8:30
KANSAS CITY (KC)	9:15



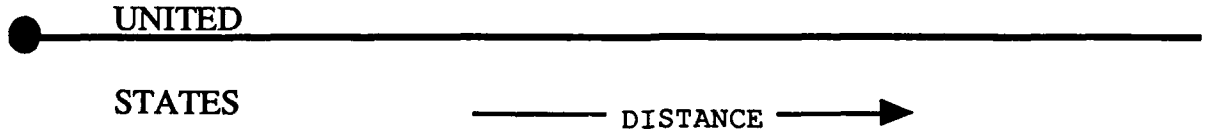
	AF	NV	AR	WP1	WP2		AF	NV	AR	WP1	WP2
AFGHANISTAN	4:43	5:01	5:20	4:22	4:29	JAPAN	9:21	9:44	9:26	8:27	8:43
EGYPT	3:32	3:45	4:01	3:41	4:00	POLAND	2:14	2:37	2:16	2:49	2:39
GERMANY	2:25	2:24	2:16	2:16	2:40	S.KOREA	9:27	9:14	9:39	7:46	8:19
INDIA	6:10	6:34	6:14	4:50	4:54	SPAIN	3:02	3:06	3:03	3:00	3:03

2.*Distance*. Using the line below mark off the distance between each country and the U.S. Once again use the country's abbreviation to **mark** its distance.



Mark the relative distances of:

AFGHANISTAN (AF) JAPAN (JA) EGYPT (EG)
POLAND (PO) GERMANY (GE) SOUTH KOREA (SK)
INDIA (IN) SPAIN (SP)



	AF	NV	AR	WP1	WP2
AFGHANISTAN	11.30	11.35	11.26	9.16	9.39
EGYPT	8.00	8.25	7.82	7.44	7.89
GERMANY	5.55	5.77	5.40	5.75	5.67
INDIA	12.82	11.87	11.76	10.34	10.15

	AF	NV	AR	WP1	WP2
JAPAN	10.06	10.64	10.86	8.56	8.52
POLAND	6.78	6.28	6.37	6.88	6.92
S.KOREA	10.54	11.12	9.77	9.17	8.98
SPAIN	5.04	4.79	4.67	4.48	4.42

C. Geographic Features.

1. *Areal Size.* Mentally determine the area of each country and then rank them with one (1) being the smallest country and nine (9) being the largest country. **The same number can be used mor than once** (use only whole numbers).

UNITED STATES 6

	AF	NV	AR	WP1	WP2		AF	NV	AR	WP1	WP2
AFGHANISTAN	3	3	3	4	3	JAPAN	2	1	2	2	1
EGYPT	5	3	4	3	3	POLAND	3	3	3	3	3
GERMANY	3	3	3	3	3	S.KOREA	1	1	1	2	1
INDIA	6	5	4	5	5	SPAIN	4	3	3	4	3

2. *Population Size.* As with the area, determine the populatio of each country and then rank them with one (1) being the smallest country and nine (9) being the largest country. **The same number can be used more than once.**

UNITED STATES 6

	AF	NV	AR	WP1	WP2		AF	NV	AR	WP1	WP2
AFGHANISTAN	1	2	1	3	3	JAPAN	5	4	5	4	5
EGYPT	2	2	4	3	4	POLAND	3	3	3	4	3
GERMANY	4	4	4	4	4	S.KOREA	4	2	3	3	3
INDIA	7	8	8	8	7	SPAIN	3	2	2	3	4

D. Geopolitical Characteristics.

1. As with the two previous exercises, rank the countries which the U.S. places the least (1) and most (5) strategic value upon the country. **The same number can be used more than once** (use only whole numbers).

	AF	NV	AR	WP1	WP2		AF	NV	AR	WP1	WP2
AFGHANISTAN	2	1	3	2	3	JAPAN	5	5	5	4	4
EGYPT	4	4	4	3	4	POLAND	3	3	3	3	3
GERMANY	5	5	4	5	4	S.KOREA	4	4	4	4	4
INDIA	3	3	4	2	3	SPAIN	2	3	3	2	2

2. List words or phrases that summarizes the countries' political, economical, or culture characteristics.

(example)

BOSTON
Irish - Bruins
- Baked beans - Catholic
- Sam Adams - Democratic
- Revolutionary War

AFGHANISTAN	JAPAN
EGYPT	POLAND
GERMANY	S.KOREA
INDIA	SPAIN

(The orginal survey had space available to respond to this task

3. Next to each country assign a number indicating its level of support towards the strategic goals of the U.S.

THREATENING - 1
POTENTIALLY THREATENING - 2
NEUTRAL - 3
POTENTIALLY SUPPORTIVE - 4
SUPPORTIVE - 5

	AF	NV	AR	WP1	WP2		AF	NV	AR	WP1	WP2
AFGHANISTAN	3	3	3	3	2	JAPAN	2,4	5	4,5	2,4	4,5
EGYPT	4	4	4	4	3,4	POLAND	4	4	3	3	4
GERMANY	4	5	4,5	5	5	S.KOREA	5	5	5	5	4,5
INDIA	3	2	2,3	3	3	SPAIN	3	4	4	3	3

E. Geopolitical Questions and Judgements.

1. Answer the following question with either short sentences, list of phrases or points (bullet comments).

a. Is the Cold War over?

b. What was / is the Cold War about?

c. Do you support a restructuring of the U.S. military budget? Why?

d. Are nuclear weapons important to world stability? If so why?

e. Should the U.S. always maintain the capability to "show the flag" anywhere around the world? If so in what manner, (i.e., stationing troops, positioning battle ships...).

f.Will greater integration of the European Community in 1992 connotate a threat to the existence of NATO? If so, in what ways? If not, why not?

g. Is the turbulence and reorganization of the Soviet Union a negative or positive event for the U.S.?

2. For each pair circle the country / region that has the greatest strategic value to the U.S.

AF	NV	AR	WP1	WP2		AF	NV	AR	WP1	WP2
71	59	31	43	36	CANADA or MEXICO	29	41	69	57	64
5	7	0	8	11	SPAIN or TURKEY	95	93	100	92	89
62	30	38	75	74	E.C.or P.RIM	38	70	62	25	26
10	4	8	34	26	AFRICA or S.AMERICA	90	96	92	66	74
90	85	85	88	77	M.E. or E.EUROPE	10	15	15	12	23

Responses shown as percents
E.C. is European Community
M.E. is Middle East
P.Rim is Pacific Rim

F. Background Data.

We need to collect some personnel data. Fill in the blank with the information requested or a check mark indicating an answer.

1. WEST POINT CADET 1st YEAR_____
   WEST POINT CADET 4th YEAR_____
   ARMY WAR COLLEGE STUDENT_____
   NAVAL WAR COLLEGE STUDENT_____
   AIR WAR COLLEGE STUDENT_____

2.Branch (make two checks)

(Responses are recorded as percentages)

a. ARMY_____

COMBAT ARMS 57 COMBAT SUPPORT 14 COMBAT SERVICE SUPPORT 29

b. NAVY_____

UNRESTRICTED LINE 79 RESTRICTED LINE 11 STAFF CORPS11

c. AIR FORCE____

OPERATIONS 50 SUPPORT 50

3.SOURCE OF COMMISSION:

	AF	NV	AR		AF	NV	AR
SERVICE ACADEMY	18	19	14	ROTC	41	41	57
OCS	36	37	14	DIRECT	5	4	14

(Median values recorded for question 4-6)

4. TOTAL NUMBER OF YEARS SPENT OVERSEAS:
(do not consider Alaska or Hawaii)

AF-4 years NV-4 years AR-5 years

5. NUMBER OF YEARS IN THE SERVICE

AF-21 years NV-19 years AR-21 years

6. AGE: AF-43 NV-41 AR-44 WP1-19 WP2-22

7. GRADUATED FROM HIGH SCHOOL:

IN THE U.S. AF-100% NV-100% AR 93%
OUTSIDE THE U.S.

1 Army officer graduated from high school in Iran

8. CONVERSE IN FOREIGN LANGUAGES:

NO AF- 91% NV-68% AR-71%

YES,(WHICH ONES) SEE FIGURE 6

9. MARRIED:

a. NO AF-5% NV-7% AR-0%

1) WAS YOUR SPOUSE RAISED IN

IN THE U.S. AF-91% NV-96% AR-93%

ANOTHER COUNTRY SEE PAGE 21

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VITA

Name: Peter R. Baker

Place of Origin: Canandaigua, New York

Date of Birth: 21 December 1959

Undergraduate Schools Attended:

University of Dayton, Dayton, Ohio

Degrees Awarded:

Bachelor of Science in Physical Education, 1983, University of Dayton.

Bachelor of Science in Business Education 1983, University of Dayton